The Military *Limes*

Aspects of the comparative development, function and significance of the linear frontier systems of the Roman empire up to AD 200

by N Hodgson

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ABSTRACT

The frontier systems considered in the following work are defined as deliberately arranged preclusive cordons of forts and minor installations, generally supplemented in the second century by continuous barriers. It is argued that such systems only existed in the provinces of Britain, Upper Germany, Raetia and Dacia. Dacia is not treated in detail. The first chapter considers the date of origin and stages of development of the Upper German and Raetian land frontier before the Hadrianic period. Chapter 2 reviews the evidence for the date and existence of linear frontiers in Britain before Hadrian. A comparative study in Chapter 3 suggests the function and the historical significance of these early linear systems. Chapter 4 discusses aspects of the Continental linear frontiers of the second century and presents a sector by sector description of the setting and distribution of their installations. This is complemented in Chapter 5 by a discussion of the Hadrianic and Antonine Walls in Britain. In particular the evidence for two periods of occupation in Antonine Scotland is examined in detail. It is concluded that the Antonine Wall was held for a single period. On the basis of the conclusions of Chapters 4 and 5, in Chapter 6 the second century frontiers are classified into types geared to varying intensities of frontier infiltration. Functions are suggested for individual frontier installations. The significance of the second century frontier walls is discussed, centring upon the question, broached in recent works on the subject, of whether these systems possessed any defensive or political rationale or were merely random by-products of aggressive Roman imperialism, military blunders and apathy. In Chapter 7 frontiers elsewhere in the empire are briefly examined to establish that (excepting Dacia), none displays a truly linear frontier system of the type characteristic of the provinces of northwest Europe.

Acknowledgements

The friends and colleagues who have discussed aspects of this work or provided information on specific points are too many to list here, and I hope that all who have helped in this way will take this as an assurance that they are not forgotten. For their practical advice and assistance I must record my thanks to Iain Hedley, Roger Oram and Graeme Stobbs.

I would like to acknowledge with gratitude a two-year studentship awarded by the British Academy which allowed me to start work on this thesis.

Particularly, I thank my supervisor, Charles Daniels, for first encouraging me in the study of Roman archaeology, and for a constant willingness to place his wide-ranging first-hand knowledge of the frontiers of the Roman empire at my disposal. Many of his ideas have found their way into this work, although he is responsible for none of its errors. *hic interim liber honori magistri mei destinatus, professione pietatis aut laudatus erit aut excusatus.*

List of Illustrations

A note on the illustrations

The illustrations are placed separately from the text in the belief that the reader will want to consult them on more than one occasion. A series of general maps (A-E) provides such information as the location of German rivers and geographical features frequently mentioned in the text, and the location of the *Strecken* into which the German frontier is divided.

The detailed maps (Figs 1-21) are intended to illustrate graphically the development of the northwestern frontiers, superimposed upon the topographical background. They have been uniformly produced at a scale of 1:1,000,000 with north at the top. The two grades of stipple denote land above 200m and 500m. The numbers refer to the same site from map to map, except that the British sites are numbered separately. There are, therefore two lists of sites: one for the British maps, and one for the German-Raetian maps. Some sites are left unnumbered if identified on the previous map in a series. Roads are only shown if described in the text.

The conventions used on the detailed maps are:

Legionary fortress ■

Auxiliary fort (1.30ha or over) ■

Small fort (0.50ha-1.30ha) ▪

Large fortlet (0.10ha-0.50ha) ▲

Fortlet (up to 0.10ha) ▴

Linear frontier installations - - - - - - - - - - - -

Road ———— Postulated — — — — — —

Town ●

An open symbol denotes possible occupation of a site

Figures 22-29 illustrate some points made in the text and provide some maps to illustrate the location of places named in the brief descriptions in Chapter 7 of frontiers outside northwest Europe.

Bibliographical note

References refer to the bibliography at the end of the text, except for those to ORL, which is the great German series: E. Fabricius, F. Hettner and O. von Sarwey, *Der obergermanische-raetische Limes des Römerreichs.* Berlin and Leipzig, 1894-1937.

ORLA covered the linear frontier, watchtowers and fortlets. ORLB was the series which dealt with the forts. ORLA is referred to below by the *Strecke(n)* that the particular volume covers. This is the only clear way to refer to the work. Where two parts have the same Strecke number the page numbers were run on concurrently, so this is quite unambiguous as a system of reference. The *'Band'* numbers denote volumes into which the work was formed when the series was advanced; not all collections of ORL have been bound into these volumes. The chaotic *'Lieferung'* numbers, which merely reflect the haphazard order in which the individual parts were issued, are best ignored. The occasional ORLA volumes without a *Strecke* number are best referred to in full, as in the case of two in the list below. In ORLB, every fort possesses an unambiguous number, and again *'Band'* and *'Lieferung'* numbers are ignored. The names of the authors concealed behind the *Strecke* numbers of ORLA can be of interest, so here they are, with the titles and dates of publication:

ORLA 1 *E Fabricius* Vom Rhein bis zur Lahn 1915
ORLA 1 *J Hagen* Die Einzelfunde 1936
ORLA 2 *E Fabricius* Von der Lahn bis zur Aar 1916
ORLA 2 *F Oelmann and W Schleiermacher* Die Einzelfunde 1936
ORLA 3 *E Fabricius* Die Limesanlagen im Taunus 1935
ORLA 3 *H Ricken* Die Einzelfunde 1935
ORLA 4-5 *E Fabricius* Die Wetteraulinie 1936
ORLA 4-5 *W Schleiermacher* Die Einzelfunde 1936
ORLA 3-5 *E Fabricius* Das Strassennetz 1936
ORLA 6 *K Stade* Die Mainlinie 1933
K Schumacher Die römischen Heerstrassen zwischen Main und Neckar ORLA BAND 3 1933
F Gundel Die Mainübergänge ORLA Band 3 1933
ORLA 7-9 *E Fabricius* Von Miltenberg am Main bis zum Haghof bei Welzheim 1931
ORLA 7-9 *K Stade* Die Einzelfunde 1933
ORLA 10 *E Fabricius* Der Odenwaldlimes 1926
ORLA 10 *K Stade* Die Einzelfunde 1935
ORLA 11 *W Schleiermacher* Die Neckarlinie 1935
ORLA 12 *O Paret* Vom Haghof bis zur württemb.-bayer.Grenze 1935
ORLA 13 *Fr Winkelmann and K Stade* Von der württembergisch-bayerischen Grenze bis Gunzenhausen 1930
ORLA 14 *E Fabricius* Von Gunzenhausen bis Kipfenberg 1927
ORLA 15 *J Fink, F Winkelmann and E Fabricius* Von Kipfenberg bis zur Donau 1933

List of Abbreviations

All references are either to ORL or the bibliography, except:

CIL	T. Mommsen *et al.*, *Corpus Inscriptionum Latinarum* (Berlin, 1862-).
ILS	H. Dessau, *Inscriptiones Latinae Selectae* (Berlin, 1892-1916)
RIB	R.G. Collingwood and R.P. Wright, *The Roman Inscriptions of Britain. I Inscriptions on stone* (Oxford, 1965. Subsequent fasicules, Gloucester 1900-
RiBW	Filtzinger, Planck and Cämmerer 1986
RiH	Baatz and Hermann 1989

INTRODUCTION

The frontier works of the Roman empire have long been the subject of intensive study, but there have been few attempts to see what can be learned by comparing frontier systems in detail. The present work sets out to compare those frontier systems of the principate which may be described as artificial and linear. By 'linear' is meant a system in which forts and smaller installations were arranged in a deliberate chain or cordon, from the first, or later, supplemented by a continuous barrier. Such linear systems have, in fact, an extraordinarily limited distribution in time and space. Once frontier systems which do not have a distinctly linear character, or where an apparently linear aspect in fact stems merely from the location of forts in relation to a road or a river, are excluded, frontiers of this type are seen to occur only in the provinces of Britain, Upper Germany, Raetia and Dacia. The type came into existence towards the end of the first century, and (with the exception of Hadrian's Wall in Britain) was extinct just over a century and a half later. The linear frontier was an idea, applied only in certain European frontier areas and at a certain time.

This work therefore takes as its premise the belief that works such as Hadrian's Wall and the palisade-*Pfahlgraben* frontier of Upper Germany were relatives of one another, and that something can be learned of their function and significance by discovering what the landscapes in which they were used had in common, and by tracing the similarities and differences in their development and structure. Frontier systems of different kinds elsewhere in the empire are briefly described in Chapter 7 to establish the point that, with the exception of Dacia, they do not resemble the linear frontiers of the Northwest. The frontier installations of Dacia are not treated in the same

detail as those of Britain, Upper Germany and Raetia, but are described in chapter 7 in order to establish that they are of a closely related type.

The development of the northern frontier of Britain is traced down to the beginning of the third century; the Upper German-Raetian frontier down to its apogee of elaboration, when the German mound-and-ditch and the Raetian Wall were built, probably before the end of the second century. Some of the fortlets on the Continental frontier considered here may possibly be third century additions. The varied fortunes and eventual loss of the Continental land frontier in the third century are not covered.

'Frontier' is meant throughout in the archaeological sense of a system of installations. It is recognised that the visible installations of all Roman frontier systems were one aspect of frontier control as a much wider field of activity involving trade, subsidy, diplomacy and frequent more or less direct interventions beyond the archaeologically visible installations. Here, the principal point of interest is the day-to-day function of the frontier itself. The wider process of frontier control is only examined where it is required to explain the presence of military sites beyond a linear frontier, or the absence of a linear frontier system, as in Africa or the East.

The linear land frontiers of Britain, Upper Germany and Raetia are identified and studied as systems of installations. Most emphasis is placed on the dating and distribution of sites. No attempt is made to study in detail the structures or internal plans of military sites, except where they have a direct bearing on the identification of the type of site involved. For example, fortlets containing barracks are differentiated from those containing smaller buildings, without a detailed description of the buildings themselves.

Distribution maps at a uniform scale of 1:1,000,000 have been prepared to illustrate the main phases of development in the frontier areas considered in detail. The types of site differentiated on these, and in the text, are: 1. Legionary fortress. 2. Auxiliary fort (1.30ha and over) 3. Small fort (including the so-called '*numerus*' forts of Germany) (0.50ha-1.30ha). 4. Large fortlet (0.10-0.50ha) 5. Fortlet (0.10ha or less). These categories doubtless subsume installations of differing type and purpose, but this simplification is necessary in order to produce clear distribution maps at the same scale.

The word 'system' is used throughout in the belief that the installations forming a given frontier, whether linear or not, formed an inter-connected whole, with some commonly understood function or purpose in mind. This is not meant to imply that frontier systems were planned unitarily from the beginning, or that the frontiers of the empire were organised to work together in some grand strategy. They were *ad hoc* creations, and developed gradually over time, but this does not mean that there was not something systematic about the way in which they worked.

The word *limes*, so commonly used for frontier systems of all types, is generally avoided here, given recent doubts (Isaac 1988) about its applicability to military installations. Nevertheless, it is one of the conclusions of this work that in the linear frontier provinces (and in those provinces only) the distinction between the military border and the *limes*, or land-boundary of the province, may have become blurred. In the absence of any known ancient term to refer to a series of military installations arranged in linear fashion, the term 'military *limes*' is used in the title of this work to refer to this restricted and distinctive type of frontier system. The use of the term *limes* is more fully discussed in section 3.7, which may be read first if clarification of the use of this term in the title is needed.

In the linear frontiers we see an idea being put into practice. They have an 'ideal' aspect: arranging a hierarchy of forts, fortlets and towers along a line may not have made much sense in military terms, but as in the ideal plan of a Roman fort or city, the individual parts made up a coherent and rationally ordered whole. As an idea it had a short life, reaching its apogee in the early second century, and proving inappropriate in the changed military conditions of the late-Roman period. It is one of the aims of the following work to show that behind the ideal facade and rhetorical flourish of these frontier systems, there lay a practicality of purpose which can reveal much about the problems that the Romans faced in holding and securing their northwestern frontiers.

Chapter 1

FLAVIAN AND TRAJANIC LINEAR FRONTIER DEVELOPMENT IN UPPER GERMANY AND RAETIA

One day in the last twenty years of the first century, an important and far-reaching decision was reached concerning the military frontier-policy of the Roman province of Upper Germany. As a result, soldiers in one sector of the frontier zone began to construct a cordon of watchtowers along a cleared track: the resulting system forming, in an unmistakeable fashion, a linear demarcation of the area of Roman military occupation. In contrast to the very few linear obstacles constructed by the Roman army before this time, the frontier that was established in Upper Germany was to have a long history. It can also be seen as the ancestor - in a way that previous linear obstacles had not been - of the famous frontier walls and barriers of the Roman empire. On present evidence it is not possible to say who was responsible for the decision. It is uncertain whether it originated at local or central level, or whether it was the product of a provincial governor or an individual military engineer, or simply sprang from the traditions of building accumulated within the army itself. Almost immediately, however, the new method of border demarcation was extended into a system of such all-embracing length and uniformity so as to suggest that its direction came from at least the level of the governor. It is also notable that a similar arrangement may have originated on the British frontier at almost exactly the same time.

For Germany and Britain, then, an attempt is made in this and the following chapter to clarify the date of the 'frontier

decision', to reconstruct the sequence by which various sectors of frontier came to be marked in this way, and to differentiate clearly between those systems of military installations which truly represented a frontier demarcation and those, albeit often interpreted in this light, which did not. It will be suggested that there are greater variations in the early linear frontier development of different parts of the northwestern provinces than have hitherto been noticed; the explanation of these is for the most part deferred to the comparative discussion of the third chapter.

The frontier systems about to be described do not represent the earliest military dispositions of linear nature to be seen. The earliest linear arrangements were in fact formed along the great river frontiers (the Lower Rhine and Upper Danube) by the reign of Claudius. Their development is discussed in section 7.1. However, although these dispositions were characterised by forts arranged *per ripam*, they displayed none of the characteristic features of the artificial linear land frontiers which originated in the period 80-100.

1.1 Developments between the Rhine and the Main: before *c*90

If forts had been arranged in a cordon along the lower Rhine by the time of Claudius, it was not until the aftermath of Domitian's Chattan war that the physical delineation of a frontier line began to take place in the newly created province of Upper Germany. This development took place at different rates and in different ways on the various sectors of the Upper German frontier.

On the eve of the Chattan war of *c*83-85 (Schönberger 1985, 369 for the arguments as to the date), the permanent Roman dispositions between the Vinxtbach and the Main were represented by two legions based at Mainz and a series of auxiliary forts, established as early as the time of Vespasian

(Schönberger 1980, 542), which controlled the fertile valley of the Wetter. Possibly this early, two forts at the confluence of the Rhine and Mosel faced the Neuwied basin. The five Wetterau forts lay along a major road of penetration at intervals of *c*14km, and followed the line of march taken, two generations earlier, by Augustus' troops from the legionary base at Mainz. A further Vespasianic fort may have lain at the Domhügel site at Frankfurt on the Main (RiH, 294). Probably within a decade (and certainly by the end of the century), this open system of military installations had been transformed into a static system of frontier lines.

The extent to which the launching and abandonment of Domitian's Chattan war immediately brought about the development of the frontier is now a matter of debate. The question is whether forts, fortlets and watchtowers forming the earliest frontier should be dated to the immediate aftermath of the Chattan war, or whether most should in fact be dated to the years after *c*90, ie after the revolt of Saturninus.

The traditional view is that '...in the Taunus and Wetterau...where the limes ran through forests, it consisted at first merely of a path free of trees. As early as the final phase of the Chattan war, it seems, the first wooden watch-towers were planted along this road...' (Schönberger 1969, 159). To take the road and watchtowers first: did they originate as early as c83-85? The argument that they did originate so early rests primarily upon two attempts to combine the historical and archaeological evidence.

1.1.1 Literary Evidence

The first of these attempts at marriage between ancient literature and archaeological evidence uses a famous passage from Frontinus' *Strategemata* (1.3.10.):

...Domitianus...cum Germani more suo e saltibus et obscuris latebris subinde impugnarent nostros tutumque regressum in profunda silvarum haberent, limitibus per centum viginti milia passuum actis non mutavit tantum statum belli, sed et subiecit dicione suae hostes, quorum refugia nudaverat.

The notion that Frontinus' *limitibus* should refer to the frontier road and watchtowers originated with Fabricius in 1935 (ORLA 3, 43-5). Noting the coincidence between the 120 miles of the passage and the length of Strecken 2-4 (*ibid.*, 45), Fabricius saw *limitibus* as referring to the early frontier. He argued that the Chatti were expelled from the wooded upland area on the south side of the Taunus ridge, from which they had been able to launch attacks upon the Romans to the south, and into which they had been able to melt away after the manner described by Frontinus. After the expulsion, Fabricius supposed, the construction of *limitibus* prevented the Chatti from returning to their *refugia*. The argument relied upon the proposition that the clause *quorum refugia nudaverat* described an action carried out prior to the action of *limitibus...actis*: ie the *refugia* were laid bare of the enemy, and then the *limitibus* constructed to prevent them from returning; *limitibus* thus clearly referred to the linear frontier.

It is easy to see why Fabricius and most subsequent scholars have found this interpretation so attractive. Not only did it satisfy the desire to find archaeological confirmation of events described in a classical text; it also meant that the text provided a commentary upon the origins and function of an artificial Roman frontier system. In the absence of many other direct evidences for the working of frontier lines, the value of the Frontinus passage was bound to be seized upon.

Unfortunately, however, it is most improbable that Frontinus referred to the establishment of a frontier line. The interpretation of the passage has been clouded by the significance that has been placed upon the word *limes* in the

sense of a defended frontier. If the passage is taken at face value, it simply says that Domitian defeated the Chatti by driving a series of roads into their woodland refuges, over a front of 120 miles. Elsewhere in the *Strategemata* (1.5.10), Frontinus clearly used the word *limes* in the sense of a road, and a road for advance and attack, at that: *Pericles... limitem agere coepit, tamquam per eum erupturus.* Writing in 1936, Syme took the Chattan war passage quite literally, and came to a different conclusion to Fabricius: 'Over a front of a hundred and twenty miles he [Domitian] drove military roads deep into the broken and wooded country that hitherto had secured them [the Chatti] impunity and thus opened access to their fortresses' (Syme 1936, 162-3). Recently B Isaac (1988, 126-8) has re-emphasised the sense of *limes* as 'a military road' in this context.

In recent years less faith has been placed upon the Fabricius interpretation, but there has been a reluctance to accept that Frontinus does not at all refer to the Taunus watchtower system. Few would now maintain - as did Simon (1954, 325-6) - that the construction of a *limes* (in the sense of a linear frontier) was part of the preparation for Domitian's campaign. Baatz has argued (1975, 14) that it was the outermost of the military penetration roads described by Frontinus which eventually crystallised into the Taunus frontier.

In a recent article, G Perl (1981), while emphasising the first century sense of *limes* as 'a road', notes that the chapter of the Strategemata (3) in which the passage lies is entitled *de constituendo statu belli,* and that every strategem listed within it is designed to force or alter the terms of warfare once it is underway. From this point of view it is unlikely that *limitibus* refers to something established in the 'final phase' of the war, or later. On the other hand, the fact that the passage does not occur in Chapter 1, which deals with precautions taken before struggles, should (along with the archaeological dating evidence discussed in 1.1.2-3 below)

dispose of the old idea that it may refer to any kind of system built before the commencement of the Chattan war.

As a device for changing the nature of a war, a network of roads and lanes penetrating the fastnesses in which an opponent could take refuge would seem a much more convincing interpretation of *limitibus* than the provision of a frontier road with watchtowers. The whole sense of the passage is that the enemy was brought under Domitian's sway: *subiecit dicioni suae hostes*. A preclusive frontier could hardly be considered to have subjugated the enemy. It is because multiple penetration roads are meant that Frontinus uses the plural form *limitibus*. The terminology of the Roman surveyor sometimes used *limes* in the sense of a boundary (Isaac 1988, 16); but to the same surveyor the phrase *limites agere* would signify the laying out of paths in a grid pattern surrounding fields or areas of land (Perl 1981, 577).

If the earliest road with watchtowers in *Strecken* 2-4 can no longer be associated with the Frontinus passage, it follows that Frontinus can no longer be used to date the establishment of the system to the time of the Chattan war.

1.1.2 Archaeological Evidence

The second interplay of historical and archaeological evidence which has resulted in an early dating of the system centres upon the fact that the first phase of the earliest timber watchtowers, principally in *Strecke* 2, appears to have ended in destruction. Until recently it was generally assumed that this destruction was wrought by attackers while the Roman military was distracted during the Saturninus revolt of 88-89. Therefore, it was argued, the towers must have been in existence by 88-89. Where no burnt first phase towers were evident, as in *Strecke* 3, Fabricius was happy to accept that the towers could only have been built after the Saturninus

revolt, while maintaining that their sites were chosen, and the line of the patrol track laid out, as early as the Chattan war (ORLA 3, 46-7).

However, while the destruction (where it existed) was real enough, a recent survey of the evidence from the *Strecke* 2 towers has shown that datable finds from the demolition of the phase I post holes and ring ditches (always filled before the digging of the outer ring ditches for the larger replacement towers) include, at five sites, Trajanic or Hadrianic material (Schönberger 1985, 379-80). Thus the replacement of these towers has nothing to do with the events of 88-89, and the earliest towers need not be earlier than the Saturninus revolt. As with the association of the frontier line with the Frontinus passage, the dating of the burnt towers to the period before 89 has stemmed from an eagerness to associate archaeological evidence with historical events.

1.1.3 Ceramic evidence

A similar uncertainty now attaches to the dating of frontier installations larger than watchtowers to the pre-Saturninus period. The traditional view is that 'Important connecting routes leading into the Wetterau from outside were given small earth-and-timber fortlets to guard them, obviously before the end of the [Chattan] war' (Schönberger 1969, 159). Altenstadt, in the eastern Wetterau, was cited by Schönberger in 1969 as a clear case of a fortlet belonging to the closing stages of the Chattan war; now it is regarded certainly to post-date the Saturninus revolt (Schönberger 1985, 463).

More recently an important paper by B Pferdehirt (1986) has expressed doubt, on the basis of a study of the samian pottery, about the dating of any of the frontier installations in *Strecken* 1-5 before *c*90, and has suggested that a number of frontier sites formerly dated to the late Domitianic period may

not in fact have come into being until the early second century. The re-assessment of these sites' foundation dates is based upon a study of the samian pottery: in particular the relative proportions of form Dr29 (formerly thought to have ceased production *c*85-90) and form Dr37, which eventually wholly supplanted it, at certain sites; and the relative proportions at given sites of South Gaulish samian and the Central and East Gaulish samian that by some date in the early second century had wholly replaced it.

Pferdehirt's study certainly casts doubt upon the traditional starting date for sites in the Taunus-Wetterau in the mid 80s; among sites producing a significant sample, Butzbach and Zugmantel show no Dr29 whatsoever. In contrast, and as a control, the fort at Bad Nauheim, usually thought to have been founded in connection with the Chattan war, shows 14.3% 29 to 85.7% 37 (Pferdehirt 1986, 245). In Britain, Inchtuthil was abandoned in the later 80s; the proportions there are 55% 29 to 45% 37 (Frere and Wilkes 1989, 217). Pferdehirt can not be said to have disproved early occupation at all of the sites that she re-dates. Some of the samples are very small: only 11 vessels in the case of Bendorf, sensibly seen as the site of a Chattan war bridgehead fort (Cüppers 1990, 330-32), and known to have enjoyed several phases before its abandonment under Trajan (ORLB 2, 25), but dated by Pferdehirt to later than 100 because of an absence of Dr29. At the Saalburg the percentage of Dr29 leads Pferdehirt to concede a date in the 90s for the earliest activity.

Pferdehirt argues that sites where Dr29 is absent must have been founded later than 100, on the basis of her belief that the form can be shown to have continued in use until that year. Her evidence for this longevity of Dr29 is the occurrence of the form at certain British sites founded or enlarged after the withdrawal from northern Scotland in *c*87-90; and the fact that form 29 was produced by the potter Natalis, whose period of production is claimed to begin no earlier than the late 90s.

For the end-date of form 29 Pferdehirt employs the Wetterau fort of Echzell, first built, on her argument in *c*101, and devoid of Dr29 (*ibid.*, 249-50).

However, there are objections to these attempts to date the end of form 29 independently. The British forts employed are Newstead and Watercrook (*ibid.*, 249). At the former there is a great risk that any pottery in use in a post-90 context may be residual; at Watercrook, perhaps not founded until the 90s, a striking feature of the samian report was '...the scarcity of form 29...The complete collection from the site contains only one example of this form...and a small rim sherd from another...' (Potter 1979, 269). In any case the argument is circular, for the dating of the foundation of Watercrook to later than *c*90 is in part derived from the scarcity of 29.

As for the production of form 29 by the potter Natalis: Pferdehirt's argument here is that as Natalis is not represented at fort III at Rottweil, which came to an end no earlier than the late 90s on coin evidence, then his period of production must begin very close to 100. The existence of Natalis 29s (although they formed only a small part of his output) is therefore taken to mean that the form was still in production up to 100. However, the absence of Natalis' products cannot be taken as proof that his period of production did not start earlier in the 90s. Given the potentially complex and ill-understood nature of samian production and supply it seems dangerous to make much of the absence of a given potter's products from a particular period on a site. For an earlier period Millett (1987, 96) has recently shown that there need be little coincidence of potters' stamps in large samian groups from exactly contemporary deposits. Thus the existence of Natalis 29s need not be inconsistent with an earlier date for the end of the form: nor does it disprove that sites lacking form 29 could in fact have been founded in the 90s.

Having argued for the continuation of 29 production into the 90s, Pferdehirt then uses the evidence of Echzell to establish its end-date. At this site form 29 is completely absent. Pferdehirt believes the building date of the fort to be closely established at *c*101 by the occurrence of tiles of both XIV and XXII legions in an associated building, the so-called *mansio*. The presence of both legions is taken to suggest (1986, 249-50) that the building dates to the time of the replacement of the XIV legion at Mainz by the XXII. The traditional date for this is *c*92, but Pferdehirt (*ibid.*, 232) has accepted the re-dating of the change-over to *c*101 by Waurick (1986, 834), and concludes 'Somit ergibt sich für das Kastell Echzell ein Grüngungsdatum 100\101 n. Chr.'

However, even if the revision of the date of the legion-change was accepted, it should be clear that the tiles, and the building in which they occur, do not necessarily date to the foundation of the fort. The timber fort at Echzell could easily have pre-dated the '*mansio*' and have been founded earlier in the 90s, and so cannot be used to show that an absence of 29 means a foundation later than 100. As Eschbaumer and Faber (1988, 235) remark, 'Das Kastell kann sehr wohl vor der Mansio errichtet worden sein. Damit fällt Echzell als absolut datierter Fundort aus'.

The second fundamental point Pferdehirt seeks to make is that South Gaulish samian did not begin to be dislodged by Central and East Gaulish in Germany until after *c*110. This must be concurred with, as only South Gaulish occurs at Heddernheim A (given up *c*110: Fischer 1961), while at Hofheim II the latest coin is a mint piece of 106. Here the vast majority of samian is still South Gaulish (Pferdehirt 1986, 234). After *c*110 South Gaulish was rapidly driven off the market; it is considered by Pferdehirt finally to have stopped arriving between 115 and 120 (*ibid.*, 234). At Bendorf, where the latest coins are of 112-117, Central and East Gaulish occurs in equal amounts to South Gaulish; at Heddesdorf, claimed by Pferdehirt

to be the obvious successor fort to Bendorf, 'ist einschliesslich des zugehörigen Vicus keine sicher südgallische Reliefschüssel mehr nachweisbar'. Pferdehirt goes on to suggest that certain sites which have produced no South Gaulish samian cannot have been founded until after c110. Of those which fall on the Rhine-Main frontier, Degerfeld and Inheiden are generally not necessarily dated any earlier. The sites where problems arise, for their foundation date is usually seen in the 90s, are Zugmantel and Altenstadt.

To summarise: using the available data from military sites, Pferdehirt has sought to establish an absolute sequence by which the declining ratio of 29 to 37, and South Gaulish to Central and East Gaulish samian, can be seen to take place in a steady chronological progression. By revealing where the earliest known sites on the frontier lie on that scale, which is dated by reference to independent, aceramic evidence, Pferdehirt's work has shown that they were probably not founded until after c90. Her independent dating of the sequence also leads her to the conclusion that much of the later frontier line was not in fact garrisoned until the early second century. However, her use of aceramic archaeological dating evidence is questionable, and with the possible intriguing exceptions of Zugmantel and Altenstadt, Pferdehirt cannot be said to have proved that the frontier sites in question were not already founded at some date in the 90s.

1.1.4 Conclusion: the Beginnings of the Linear Frontier in Upper Germany

Just as Frontinus and the supposed destruction of towers during Saturninus' revolt can no longer be taken to prove that the patrol track and watchtowers were constructed before c90, so Pferdehirt's thesis provides reason to think that the linear frontier system may not have begun to develop until after that date. None of her data are drawn from the watchtowers

themselves, but if the associated fortlet sites were constructed after *c*90, then there is a high probability that the watchtower system originated at the same time.

Such a late dating of the watchtower system at first seems to pose difficulties: there would, it may be assumed, have been a desire to close the frontier after Domitian's advance against the Chatti was brought to a close in *c*85. In Germany in the mid 80s, however, the Chattan war was discontinued within the reign of Domitian, possibly in connection with the defeat of Oppius Sabinus at the hands of the Dacians (Schönberger 1985, 369), when forces were apparently transferred to the area of crisis on the Danube. The intent may have been to resume the Chattan war at some time; at any rate the military situation between Rhine and Main may have remained fluid. The occasion when the decision was taken to constitute a linear frontier may not have arisen until the constitution of the two provinces of Upper and Lower Germany took place in *c*90. This provides an attractive context, supported by the archaeological dating evidence, for the beginnings of the Rhine-Main linear frontier. It would also make the establishment of the watchtower system exactly contemporary with the building of the analagous Gask frontier in Britain, if the later of the two possible contexts for the latter is accepted (*c*90 as opposed to *c*80-81).

1.2 Frontier development between Rhine and Main *c*90-*c*100 (Fig 1)

Strecke 1

The later frontier line formed a salient around the Neuwied basin, a fertile and ancient area of settlement on the far side of the Rhine. Here three forts are known which probably held garrisons by the 90s, although very little is known about their early histories. Pferdehirt, in her recent study of the

samian, has expressed doubt about the foundation date for two of the three sites being this early; but as one would expect to find some Roman occupation of this fertile area by the end of the first century, it is necessary to scrutinise the reasons given for supposing a later foundation date.

Pferdehirt (1986, 269) dates the foundation of Heddesdorf to later than *c*115, on the basis of an absence of South Gaulish samian. The only known fort at Heddesdorf is stone, however, so the possibility of an earlier timber site in the vicinity cannot be ruled out.

At Bendorf (*ibid.*, 269-70), Pferdehirt accepts that the fort, a timber site never re-built in stone, probably did not last into Hadrian's reign, yet dates its foundation to after *c*110 on the basis of 'der verhältnismässig hohe nichtsüdgallische Bilderschüsslanteil'. However, the proportion of East and Central Gaulish samian to South Gaulish is 42.10%, on a sample of only 18 vessels (*ibid.*, 247). This is surely consonant with a possible foundation date earlier than that given by Pferdehirt, by which time there should have been little South Gaulish samian reaching the site. Furthermore the presence of tiles of *legio XIV* have been taken to suggest that Bendorf served as a bridgehead site during the Chattan war (Perl 1981, 581). At the third fort, Niederberg, there is less information, but a late Domitianic date has been considered likely (Baatz 1975, 88; Schönberger 1985, 460). It seems plausible that these forts, whenever they came into being, replaced earlier posts on the west side of the Rhine, perhaps at Andernach and Koblenz, although forts of the period *c*90-*c*100 have not yet been proved at these sites.

In general then, the foundation of the Neuwieder forts falls somewhere between 90 and 110. At this early date, however, there is unlikely to have been a linear frontier system between Rhine and Lahn. This sector has produced none of the smaller, earlier phase towers of *Strecken* 2-4; the earliest wooden

towers of *Strecke* 1 are closely analogous to the secondary towers of *Strecke* 2, for which a Hadrianic date may quite plausibly be argued. Indeed, until Heddesdorf, Bendorf and Niederberg were founded beyond the Rhine, the Rhine and the Lahn between Rheinbrohl and Ems may have served as the frontier line.

Strecken 2, 3 and 4/1-53

Moving into *Strecken* 2 and 3, a probable fort of the 90s lay at Marienfels, where two successive forts of 1ha and 2ha are known. By the mid-second century the site was abandoned in favour of Hunzel, nearer to the frontier line (Schönberger 1985, 461; Klee 1989, 55-6), a useful indicator that in its first conception Marienfels was not solely concerned with frontier line affairs.

There are not many more forts in *Strecken* 2 and 3 more than 0.50ha in size which can be shown to have existed this early. Even the evidence for *Kleinkastelle*, which small installations might fill the gap, is inconclusive; Auf dem Pohl, at Kemel, is treated in general by the German scholars as originating before the end of the century (RiH 373; Schönberger 1985, 380). It is a pity there is no more positive proof, for the alignment of the earlier fortlet in relation to the frontier line suggests that the latter was in existence when the fortlet was built.

At least three other fortlets in *Strecken* 2 and 3 may belong to the same early scheme as Kemel. A fortlet of about 0.25ha detected from the air in 1980 which preceded the second-century *numerus* fort of Alteburg-Heftrich, between Zugmantel and the Saalburg, was perhaps in use as early as the 90s (Schönberger 1985, 478; plan in RiH, 343). Another strong possibility for an early *Kleinkastell* is Ockstädter Wald, which was succeeded by Kapersburg; this fortlet seems to have been aligned in relation to a road coming from Friedberg, and was itself

succeeded by a watchtower at WP 4/11 (ORLA 4-5, 62-4; Taf 3.5). An early fortlet may be suspected at the site of the later *numerus* fort of Feldberg, guarding the highest pass through the Taunus, although to date nothing larger than an early timber tower (WP 3/45*) has been discovered.

Pferdehirt's study has cast doubt on the existence of the known site at Zugmantel so early, so the next secure site for stage 2 is the Saalburg, where the 0.70ha timber fort (the *Erdkastell*) was almost certainly founded in the 90s (Schönberger 1985, 461; Pferdehirt 1986, 273). It had been immediately preceded by an enclosure (*Schanze* A) and a fortlet (*Schanze* B), each of 0.10ha. A fort is considered possibly to have been founded this early at Langenhain, where the river Usa provides access through the eastern Taunus (Schönberger 1985, 463; 1983, 59). A timber auxiliary fort, perhaps over 4ha in size (RiH 246), could have existed at Butzbach in the 90s, despite Pferdehirt's belief (1986, 275) that the lack of Dr29 from the site dates its origin to after c100. The same applies to Echzell, a timber fort of 5.20ha (Schönberger 1985, 463) on the opposite side of the Wetterau. As shown above (1.1.3), Pferdehirt's aceramic dating of the site's origin to 100-101 derives from an external building which need not be primary. Between the two a timber fort, possibly of considerable size, existed at Arnsburg by the 90s (*ibid.*, 462-3; Pferdehirt 1986, 276).

It was argued above (1.1) that there is no overwhelming reason to see a watchtower frontier system originating in the 80s. It is in this central sector of the Rhine-Main frontier (*Strecken* 2-4) that the earliest watchtower cordons were created, probably in the 90s. Only here occur the timber towers of very small size - c2.50m square - (ORLA 2 Taf 7; 3, 24; 45) which would later be replaced by larger examples. East of WP 4/53 none of the earlier, small timber towers are known, supporting the suggestion that in the northern Wetterau, in the vicinity of Arnsburg, the original watchtower frontier terminated, perhaps at the river Wetter.

Strecken 4 (eastern part) and 5

South of this spread of large, early forts, the later frontier line of the remainder of *Strecke* 4, and of *Strecke* 5, did not exist before the end of the first century. Rather, the line of Roman frontier control seems to have gone from Echzell to Hanau-Salisberg on the Main via Ober-Florstadt and Heldenbergen. Ober-Florstadt has been suggested as the site of a late-first century fortlet (Schönberger 1985, 463, not ruled out by Pferdehirt 1986, 277); a small fort of c0.80ha probably lay at Heldenbergen, while a military site, probably a cohort-fort, at Salisberg had replaced the site usually interpreted as an unfinished Domitianic campaign fortress at Hanau-Kesselstadt (Schönberger 1985, 464).

No watchtowers or other paraphernalia of a linear frontier system are known on this earlier, western line. However, the known installations are most probably connected by a road. The suggestion that a military road connected Echzell and Hanau on the Main was made by Wolff (1916, 58-66) and subsequently taken up by Fabricius (ORLA 4-5, 36). Wolff had astutely realised that the installations along this alignment in the eastern Wetterau represented a linear arrangement earlier in date than the well-known frontier line to the east which terminated at Gross-Krotzenburg on the Main, although he saw it in terms of an earlier defensive line. Fabricius (*ibid.*, 47-8) viewed it in the same way, rightly seeing the establishment of a watchtower frontier to the east as post-dating the establishment of watchtowers in *Strecken* 2, 3 and part of 4 (which he equated with the 120 miles of *limitibus* mentioned by Frontinus). The significance of an open road in exposed territory, with road stations at intervals, will be considered below (3.4.2) in relation to near contemporary dispositions elsewhere, particularly the Stanegate in Britain.

Conclusion

One of the most striking aspects of the development of the Rhine-Main frontier just outlined is the differential treatment of various parts of the frontier at the same time. It seems clear that while in places a watchtower cordon had been found necessary, elsewhere open dispositions of military sites were allowed to prevail.

1.3 Frontier Development between Rhine and Main *c*100-*c*110 (fig 2)

The most striking change in Roman military dispositions in the Rhine-Main area after the end of the first century was the evacuation of most of the road forts by c110 (Schönberger 1985, 381-3; Pferdehirt 1986, 309). Wiesbaden, Hofheim, Heddernheim (and Frankfurt Domhügel) were given up at this time; Okarben and Bad Nauheim were held for a few more years. The abandonment of these forts led to more auxiliary units being placed on the frontier line itself, although, as we shall see, they were not evenly distributed. Nevertheless, it is clear that the process of movement towards a thinly spread cordon of units pre-dated the reign of Hadrian, so often in the past attributed with the move away from in depth defensive arrangements to the rear of the frontier line (as by Brogan 1935, 17-18; Schleiermacher 1967, 218-19).

Strecke 1

The foundation of the Neuwieder forts of Heddesdorf, Bendorf and Niederberg must have taken place now if not earlier, although it is not clear whether the watchtower system of *Strecke* 1 should be placed this early.

Strecken 2 and 3 and the west part of Strecke 4

Here an intensification of the frontier installations may be marked by 110, but overall coverage on the Taunus ridge remained very thin. By *c*110 the 0.70ha timber fort at Zugmantel, of corresponding size to the timber fort at the Saalburg founded *c*15 years earlier, was certainly in operation (Pferdehirt 1986, 270). The small (0.40ha) fort of Heidekringen, on the north slope of the Taunus ridge, 5km south of the frontier line, on the Roman road from Wiesbaden to Zugmantel, is thought to have had a brief occupation in the early second century (RiH, 346). A further timber fort of 0.80ha at Kapersburg was built most probably by *c*110 (RiH 364; Schönberger 1985, 462). This site was probably a successor to a fortlet - Ockstädter Wald - which had probably existed since the 90s. If a site did not already exist at Langenhain, the fort was now founded, possibly receiving *cohors I Biturigum Aquitanorum equitata* from Rottweil (Schönberger 1985, 462).

The *Kleinkastell* of 0.09ha at Degerfeld was supplied by 110, if not earlier (it could in theory have originated at the same time as the fort at Butzbach) (Pferdehirt 1986, 275). The date of the provision of a fortlet in such close proximity to an auxiliary fort could probably supply a vital clue to the date of the introduction of the watchtower system: a fortlet right up on the line, as Degerfeld, is hardly likely to predate it, and should provide a *terminus ante quem* for patrol track and towers. In fact, none of the conclusions that can be drawn from the pottery evidence (Pferdehirt 1986, 275) preclude a building date for Degerfeld in the 90s; as argued above (1.1.3), the *terminus post quem* of 100-101 for a site without Dr29 is derived from the spuriously dated Echzell. The amount of South Gaulish samian that Degerfeld yields (*ibid.*), should at least prove that the watchtower system was in existence in *Strecke* 4 before 110.

The east part of Strecke 4 and Strecke 5

At some time shortly before c110 probably lies the foundation of Inheiden (timber, 0.60ha in its first form: RiH, 363), which has produced South Gaulish samian (Pferdehirt 1986, 276). This constitutes only 2.40% of the samian known (*ibid.*, 247), suggesting that the foundation of the fort is not to be placed long before c110. Echzell, as we have seen, was probably already in existence by the 90s. There is South Gaulish samian also at Ober-Florstadt, where it has been thought that the fortlet postulated for the 90s must, within the first decade of the second century, have been replaced by a stone fort of 2.80ha for *cohors XXXII Voluntariorum* (*ibid.*, 277; Schönberger 1985, 463).

From Ober-Florstadt to the Main there had been no watchtower system in the 90s; a road and its accompanying stations formed the only disposition of military sites along this line. In the years after c100 certain new sites came to be occupied to the east of the old road line, which was eventually to be entirely superseded by the new frontier. As the existence of the earlier, 'road' line has not always been clearly acknowledged, it is worth restating the reasons for believing the new line to the east to be a later development.

The series of superimposed forts at Altenstadt is traditionally thought to have originated in the late Domitianic period, partly on the basis of its multiplicity of phases, and partly on the presence of a tile of *XIV Gemina* (which had left for the Danube by c100 at the latest) and South Gaulish samian (Schönberger and Simon 1983). However, the proportion of South Gaulish - five examples as against 102 Central and East Gaulish (Pferdehirt 1986, 247) - make it unlikely that the earliest installations of 0.30ha and 0.80ha respectively pre-date c110 by very long.

Marköbel, the next major fort to the south, where a timber predecessor to the known 3.30ha fort is undated, has produced no positive proof of occupation before the Trajanic period (Schönberger 1985, 464), and this is precisely what might be expected if Marköbel succeeded Heldenbergen, 8.5km to the west on the 'road' line of the 90s.

It would be tempting to see Rückingen replacing Hanau-Salisberg in the same way at the beginning of the second century, but the move to the east in this case may not have been so simple; the foundation of the known fort at Rückingen is generally dated to 110-125 (Schönberger 1985, 464; RiH 468) but a fortlet preceding the full-sized fort, perhaps manned from Hanau-Salisberg, has been suggested (*ibid.*; Klee 1989, 114). Thus it is possible that the fort on the old road line continued to be held for a time, with a fortlet placed forward in the valley of the Kinzig on what would later become the sole frontier line. Thus on the distribution map for 100-110 Hanau-Salisberg is retained and a fortlet suggested at Rückingen. It is possible, of course, that this development took place as early as the 90s, as assumed in most accounts. But this would imply the beginnings of a linear frontier in the area between Echzell and the Main at about the same time as watchtowers were being supplied in the Taunus and northern Wetterau. Yet the character of the watchtower system south of the Echzell sector certainly seems later, filling as it does in long straight stretches the gap between an already established linear frontier to the north and the Main, so it seems more likely that the first forward fortlets in this area originated *c*100 or later.

Like Rückingen, Gross-Krotzenburg, at the Main crossing at the southern end of *Strecke* 5, is thought not to have existed as early as *c*100. It had perhaps replaced Hainstadt, on the other side of the river, by *c*110 (RiH 325). At Gross-Krotzenburg too, an undiscovered fortlet may have preceded the known fort.

South Gaulish samian from the site suggests activity before *c*110 (Schönberger 1985, 464).

The pattern that clearly emerges between the Nidda and the Main is of an alignment of sites along a road during the 90s being replaced by an artificial frontier system with new sites up to 10km to the east between 100 and 110. This development of an artificial frontier from a rearward road has obvious parallels (3.5 and 6.1 below).

1.3.2 The laying out of watchtower lines in all sectors

With the possible exception of *Strecke* 1 it seems that the course of the frontier line between Rhine and Main was entirely finalised in these years, ie by *c*110. In *Strecken* 4 and 5, Altenstadt, which must at the latest have originated in the first decade of the second century, and Gross-Krotzenburg, probably of similar date, are both situated right up against dead straight watchtower alignments which have obviously been surveyed over many miles. It is hardly likely that the forts pre-date the frontier line, and therefore they should provide a *terminus ante quem* for its establishment. *Strecke* 1, between the Rhine and the Lahn, may have been laid out at this time, but there is no clear evidence.

1.3.3 The earliest running barriers

The first running barriers were certainly beginning to appear on the Rhine-Main frontier by the first decade of the second century. One length of timber fencing, or *Zaun*, seems associated with the early fortlet at Ockstädter Wald (4/11: 1.2 above). Elsewhere, notably in the northern Wetterau, the palisade conventionally dated to the Hadrianic period is preceded by a ditch containing posts at intervals of 1-1.30m, running about 10m in front of the watchtowers (4.7.S4 below).

Such a '*Zaungräbchen*' was contemporary with the second phase of certain timber tower sites in *Strecke* 4 (Baatz 1975, 122-3).

1.4 Frontier Development on the Main, Odenwald and Neckar *c*90-*c*100 (Fig 5)

1.4.1 The Main

At some date after the close of the Chattan War, military installations began to be arranged in a linear disposition along that part of the river Main which runs south from Gross Krotzenburg, and also along that part of the Neckar between Wimpfen and Köngen. The date of the beginning of this arrangement is debated. The intervening Odenwald sector (*Strecke* 10) does not seem to have been garrisoned as early as the two stretches of river. The traditional date for the first installations along the Main (*Strecke* 6) is soon after *c*90 (Baatz 1975, 148); in the Odenwald, *c*100 (*ibid.*, 153), and again after *c*90 for the Neckar (*Strecke* 11) (*ibid.*, 173).

The Main, Schönberger has suggested (1985, 383-4), may have been garrisoned in the first instance only with small fortlets; an early timber fortlet of 0.30ha is known at Stockstadt (RiH 480), and this has led to the suggestion that another fortlet may have formed the earliest installation at Obernburg (*ibid.*, 457-8), but there is no firm evidence for this. Likewise, B. Beckmann has suggested (*ibid.*, 334) that a series of small, *numerus* type forts of the 90s remain to be found on the old Main line, on the basis of Hainstadt (0.90ha): other possible early sites of this type have been suggested at Hanau-Salisberg where a sequence of two bath-houses has been taken to suggest a smaller early site, and Seligenstadt (Schönberger 1985, 464-65). Pferdehirt points out (1986, 277) that the samian does not support the suggestion of such an early site at Seligenstadt.

In general, the traditional foundation date in the 90s for the whole series of sites on the 'old' Main line may be questioned: Pferdehirt (1986, 277-79) argues for a foundation later than 100 for Seligenstadt, Stockstadt and Obernburg, on the basis of absences of Dr29; as established above (1.1.3) this need not preclude a foundation date in the 90s, but there seems no other evidence on which to base the suggestion that the sites along the Main are generally this early. Indeed, at Seligenstadt, Niedernberg and Obernburg there is no structural evidence for the postulated earlier fortlets of the 90s. While there is no way of disproving that earlier timber phases await discovery, the expectation that they will be found seems to be derived from a preconceived notion of the development of a linear frontier system. The most generous reconstruction of the arrangement of installations on *Strecke* 6 in the 90s is as follows. If the sites with asterisks (where there is no real evidence) are omitted, a different picture emerges:

Hanau-Salisberg		size unknown
	8km	
Hainstadt		0.90ha
	4km	
Seligenstadt*		?
	9km	
Stockstadt		0.30ha
	9km	
Niedernberg*		?
	9km	
Obernburg*		?
	5km	
Wörth?		early fort?

(The only known watchtowers lie between Obernburg and Wörth; they may not be this early, and in any case do not constitute a cordon, consisting as they do of individual examples.)

If the postulated early sites are discounted, a much thinner disposition of installations is seen. The sites would then be spaced at much wider intervals of 13 and 23km, with a variety of fort sizes represented: small fort, fortlet, fort.

It is tempting to associate this series of sites with the arrangement of the 90s further north in the eastern Wetterau (cf figs 1 and 5), where extensive use was made of somewhat more closely spaced installations of various sizes, along a road which, terminating at Salisberg, was (before the frontier was established running via Rückingen to the east) directly linked to the forts on the Main. As in the case of the road to the north there is no reason to assume that the function of these fortlets was anything other than provision of security to what was an important route. Given the apparent connection with the eastern Wetterau road and forts to the north, which seem to have originated *c*90-*c*100, it seems most satisfactory to date the beginnings of the garrisoning of the Main line to this time, despite Pferdehirt's suggestion that the river may have been unoccupied before 100. Of course, in this first instance, it may simply have been a case of very small outposted detachments; the move of whole garrisons to the Main line may not have come until well after 100, and Pferdehirt is surely right in attempting to demolish the idea of a regular provision of fortlets or small forts forming a frontier system along the Main in the 90s.

1.4.2 The Odenwald

It seems probable that for most of the 90s the Odenwald (where, later, *Strecke* 10 connected the Main and Neckar frontiers) remained unoccupied and without installations. The conventional date for the foundation of this frontier is furnished by the samian from Hesselbach, where the absence of earlier decorated types and the presence of a high proportion of South Gaulish samian were taken to suggest a foundation

within the date range 90-105. However, Dr29s are completely absent (Pferdehirt 1986, 279), leading Pferdehirt to suggest a foundation date after 100; while South Gaulish samian dominated the market down to *c*110, implying that Hesselbach could be that late. While there is no proof that sites without Dr29s may not have been founded as early as the 90s, we must accept Pferdehirt's demonstration that the conventional end of the date range for Hesselbach's foundation - 105 - must now be extended to *c*110. For the purposes of this study, then, Hesselbach - and the Odenwald frontier - are placed on the maps as originating after *c*100, and probably nearer *c*110. 17% of the samian from Hesselbach was South Gaulish: theoretically the site could have been founded after *c*110.

1.4.3 The Neckar

Certain of the sites on the river Neckar, on the other hand, clearly seem to originate by the 90s: Wimpfen by *c*80 (according to Pferdehirt's (1986, 280) study of the samian, although on the basis of the scarcity of Flavian material Planck (1988, 261) has doubted whether the site was really founded this early); Böckingen probably in the 90s, having the same percentage of Dr29 as the Saalburg (Pferdehirt 1986, 281); Stuttgart-Bad Canstatt by *c*90; and Köngen in the 90s (Pferdehirt 1986, 282). Walheim and Benningen are dated to the last decade of the first century by association. The model that emerges is of distributions of sites forming along the river lines in the 90s, but not so early in the Odenwald; in other words, in the 90s and perhaps up to *c*110 or beyond, the Odenwald would have projected as a great free salient into the territory occupied by Roman forts and roads. This need not occasion surprise; it was a natural obstacle to movement, and not being a populous or tractable area was not considered deserving of garrisons. In fact the garrisons of the Rhine valley, the Main and the Neckar will have effectively encircled the Odenwald on three sides. Interestingly, then, as late as

the 90s the emphasis here was still on the advancing of routes of communication and control of territory rather than on frontier delineation. It is also important to realise that alongside the sites on Main and Neckar, older foundations in a great arc sweeping around the west side of the Odenwald were still in play: Gross-Gerau; Gernsheim; Ladenburg (Sommer and Kaiser 1988); Neuenheim; all of these except Ladenburg remained in use for a time after the eventual establishment of the Odenwald frontier. Planck (1988, 264-66) has suggested that as the move from the Rhine and lower Neckar to Middle Neckar entailed an unusually deep thrust from old installations to new, some intermediate system of forts may await discovery; perhaps a line running north from Rottenburg towards the lower Neckar. However, it is probably anachronistic to expect an intermediate clear linear frontier system to have developed; individually sited forts and a network of communications filled the space between Rhine and Neckar, and while hitherto undiscovered elements of this may still come to light, there is no reason to believe that a linear arrangement pre-dated the beginnings of the placing of installations along the river lines.

Not only was there a great gap in the linear aspect of the Main-Odenwald-Neckar frontier in the 90s; the Neckar itself possessed few of the characteristics of a frontier line - nor would it, later. The spacing between some fort sites in the 90s was very wide: up to 20km between Böckingen and Walheim, Benningen and Canstatt, Canstatt and Köngen. The river ran through good settlement land on both sides, was easily crossed by numerous fords, and the Roman road itself ran variously on the east and west banks (ORLA 11, 7; Baatz 1975, 172-3). An imperial estate existed in the 90s which extended beyond the river (ILS 8855; ORLA 11, 39-41). Clearly neither the river nor anything else formed a defined linear frontier; there was still only an area of military control.

1.5 Frontier Development on the Main, Odenwald and Neckar *c*100-*c*110 (Fig 6)

1.5.1 The Main

Changes probably took place along the Main in these years, linked to the realignment of the eastern Wetterau road as a frontier which seemingly took place now. The 0.90ha fort at Hainstadt on the west bank of the Main was perhaps given up now to be replaced by a full-sized fort at Gross-Krotzenburg. At Seligenstadt there may have been a full sized timber fort by c110; on the available pottery, however, the timber fort cannot be dated more closely than to the Trajanic period. At some date in the early second century, the fortlet at Stockstadt was replaced by a timber fort of 3.20ha (an intervening structure perhaps representing a construction camp) (RiH, 480). There is an absence of South Gaulish samian from the new fort, leading Pferdehirt (1986, 279) to date it to c115 or later. The ditches of the fortlet contained East and Central Gaulish mixed with South Gaulish samian, implying that they were not filled in until after c110; South Gaulish samian has not yet occurred in the timber cohort fort. In the interval between the use of these installations must be fitted the second enclosure, interpreted variously as a construction camp or a timber fort preceding that known beneath the later stone fort. Again, here the implication is that a full-size conventional cohort fort need not have been built until the late-Trajanic or the Hadrianic period. At the next fort along the Main, Niedernberg, there is still a lack of information about the timber phases pre-dating the known stone fort; a site is assumed on the grounds of circumstance and spacing, but nothing can be said about its character or size (RiH, 455). Again, one must wonder whether a fort here was a late installation. At Obernburg, no structural evidence for the predecessor to the known stone fort has yet come to light. Presumably there was a military site of some kind here before the Hadrianic period, on

the strength of six South Gaulish Dr37s (Pferdehirt 1986, 247; 279).

1.5.2 The Odenwald

As argued above (1.4.2), the most likely date for the foundation of Hesselbach lies towards the end of the decade *c*100-110. With the establishment of this and the other *numerus* forts of the northern Odenwald - a series 'uberraschend gleichartig gebaut' (Baatz 1975, 153) - is usually placed the establishment of a road and watchtowers demarcating the Odenwald frontier. Certainly there is no reason to believe that the disposition of forts pre-dates the cordon of towers. There is an indication that Pferdehirt may be right to assign this system to the end, rather than the beginning of, the first decade of the first century: the fact that it is unusual (while not unknown) to find more than one phase of timber watchtower at any given site in the northern Odenwald, which may be taken as evidence that the sector originated rather later than most of the Taunus-Wetterau, the life of a single timber tower being sufficient to see out the time before its replacement in stone (Baatz 1975, 155).

However, it was established above (1.2) that the provision of a watchtower system in all parts of the Wetterau may not have been completed until after *c*100. If the implied lagging behind of the Odenwald sector is to be believed, it cannot have come into existence much before *c*110. Additional support for a later date is provided by the distinctive design of the earliest Odenwald towers, with their characteristic foundations of interlaced dry stone and timber. Furthermore, as Planck has pointed out (1988, 262), the closing off of the Odenwald implies that the decision had already been taken that the Main, at least, should serve as a frontier line (for the Odenwald line takes the most direct arbitrary route from Main to Neckar); ie the Odenwald followed as a consequence of the

establishment of the river frontier: and as we have seen (1.4.1; 1.5.1), the provision of full-sized auxiliary forts on the Main river line probably did not begin until some date between *c*100 and *c*110.

In the southern Odenwald two cohort forts were provided, Oberscheidental and Neckarburken West. This latter, the more southerly, should, like Hesselbach, have been in existence by c110-15 on the basis of its high percentage of South Gaulish samian (Pferdehirt 1986, 280). It lay alongside a 0.60ha fort of the more usual Odenwald type, Neckarburken East, apparently founded at the same time (Schönberger 1985, 280). The co-existence of these forts at this site, and the fact that both Neckarburken East and Oberscheidental have east walls lying less than 50m from the frontier line, which runs in a dead straight course from Schlossau to the Neckar, make it most unlikely that these forts were founded before, or independently of, the watchtower system, and effectively provide a *terminus ante quem* of *c*110 for its establishment.

1.5.3 The Neckar

Along the Neckar, the forts of Wimpfen, Böckingen, Walheim, Benningen, Stuttgart Bad Canstatt and Köngen had already been founded as early as *c*90-*c*100 (Schönberger 1985, 386; 468). What little of the paraphernalia of formal frontier installations that the river has produced are not necessarily to be dated as early as the Trajanic period. On the basis of a tower seen from the air south of Heilbronn-Böckingen, Planck (1987, 422) has raised the possibility of at least isolated towers along the Neckar line. However, isolated towers seem to have served specialised local purposes, and to have provided security on routes of communication: unless they are regularly spaced in a cordon, there is no reason to believe that they necessarily served the functions of border demarcation and surveillance. This point is seen particularly clearly in

relation to the Stanegate in Britain, a major road with examples of individual towers. Therefore the discovery of isolated towers on the Neckar does not suggest that a whole chain of towers awaits discovery.

1.5.4 The Sibyllenspur

One development which seems out of place amidst the still fluid dispositions of the Neckar and western Raetia is the running barrier, crossing the floor of the Lauter valley at Dettingen-unter-Teck, known as the Sibyllenspur (Planck 1987). The barrier comprised two phases: first a double palisade or timber framed wall of earth, fronted by a ditch 3.50m wide and 1.30m deep; second, succeeding the demolition of the first, a palisade fronted by a slightly smaller ditch. The line has been traced for 0.75km northwest-southeast across the level floor of the Lauter valley. 25m behind the phase 2 palisade lay the Dettingen fortlet, which the published account (Planck 1987, 411-16) gives an area between 0.20 and 0.30ha. The line is correctly aligned to form a link between Köngen and Donstetten, although how far it extended in either direction is not known. Its general context and role at first sight seems clear; it links the military dispositions on the Neckar and on the Schwabian Alb (which had formed by the 90s), and blocks a natural funnel of access between the two systems, movement into which might threaten the vital communication between provinces (for the rearward road see: Planck 1988, 260).

There are obvious problems in relating the dispositions of the 90s on the Neckar and in Raetia to a continuous frontier barrier. Furthermore, this would be a curiously early date for such a continuous barrier. The pottery published by Planck from the demolition or silting contexts of the ditches of the barrier could, in fact, be given an early second century date, but here again problems arise, because by the Hadrianic period

it seems likely that a network of forts (eg Eislingen) may have existed beyond the *Sibyllenspur*, making it redundant.

One solution would be to interpret the *Sibyllenspur* in a different way from the linear frontiers that we have seen forming as a general policy decision as military advance faltered after the Danubian crisis. Rather, it may represent a strictly local specialised device to prevent movement through an inviting corridor, rather in the manner of Caesar's Wall built to prevent the migration of the Helvetii, discussed below (6.3.1.3). As a local military device to prevent anticipated population movement or attacks, it need not have formed a unitary system with the Neckar and Schwabian Alb dispositions. As for the morphological similarity between the 0.30ha fortlet at Donstetten, apparently founded in the 90s (Pferdehirt 1986, 286), and the fortlet at Dettingen associated with the *Sibyllenspur*, which has prompted speculation (Schönberger 1985, 388) that they formed part of the same system: this may suggest that the barrier was still being maintained at the end of the first century, the date for its use proposed by its excavator.

1.6 Developments on the Raetian Land Frontier *c*90-*c*100 (Fig 8)

It is not possible to trace the evolution of the Roman frontier in western Raetia in the same schematic stages which were proposed for the Upper German system; in much of Upper Germany, a frontier line, chosen - or reached - at an early date, was gradually elaborated. However, in the southern part of Upper Germany, and in western Raetia, military dispositions continued to be moved forward after the Flavian period. Presumably this was partly because there was still distance to be run in the process of finalising the frontier line. By *c*110 all territory that would ever be occupied north of the Main had been enclosed; the army had acquired all it rationally needed beyond the Rhine in order to safeguard the occupied areas, and from

then on most of the frontier there remained static, and was elaborated where it stood. But in western Raetia (and in the most southern part of Upper Germany), lines of communication and military sites continued to be given up in favour of better ones, as late as the Antonine period.

The pace of development on the Raetian frontier also seems somewhat slower than that in Upper Germany and Britain, with the result that it is harder to propose a model of the Raetian frontier in, say, the 90s, which is clearly distinguishable from a model of the frontier in the decade *c*100-*c*110. An attempt has been made to produce two such models, although such hypotheses are naturally very speculative and schematic, and only time will tell whether they will stand the test of new discoveries and closer dating of sites by means of excavation.

It is possible that a military road passed between Rhine and Danube as early as the Claudian or Neronian period (Planck 1988, 255, and map 2), possibly running from the recently discovered Claudio-Neronian fort at Riegel (RiBW, 505), 45km south of Strasbourg, towards Tuttlingen on the Danube. However, the earliest of such systems of which we have any direct knowledge connected Strasbourg and the Danube via Cornelius Clemens' road, constructed *c*74 (CIL 13.9082). A fort was established at the Neckar crossing at Rottweil about this time (Planck 1988, 254-57). The disposition of forts associated with this route is not really linear, however (Planck 1988, map 2). The individual sites seem to have commanded lines of easy communication, controlling the country in a fluid way by means of a complex network of roads.

1.6.1 The Schwabian Alb

Despite an early Flavian date offered by Filtzinger (RiBW, 51), the recent researches of Heiligmann confirm that it was in the 80s or 90s that western Raetia saw the foundation of a series

of forts in the Schwabian Alb, a rolling upland north of the Upper Danube. Although Heiligmann (1990, 192-3) would see the evidence as allowing a foundation for these forts as early as the 80s, Pferdehirt's study of the samian suggests that it is more likely to be as late as 90. The foundation date of these forts thus sits very nicely with that of Köngen and the other sites to the north established along the Neckar in the 90s. Burladingen had existed since the early Flavian period (Pferdehirt 1986, 285), but the fort at Gomadingen, on its proportion of Dr29 (similar to the Saalburg and Stuttgart Bad-Canstatt) would seem to be a foundation of the 90s. The same goes for the 0.30ha fortlet at Donnstetten, and the fort at Urspring (Pferdehirt 1986, 286-87), from which a road may have continued, perhaps via undiscovered sites, to Gunzburg on the Danube.

It might be tempting to associate these foundations of the 90s with Tacitus' famous phrase, written just before the end of the first century, describing the introduction of the *agri decumates* to the empire: *mox limite acto promotisque praesidiis sinus imperii et pars provinciae habentur* (Germania 29). However, *limite* here is more likely merely to refer to road building in general (which is what opened up the tract between Rhine and Danube), rather than being a technical term referring to an artificial frontier delineation, still less a fortified line of defence (Isaac 1988, 127-28). There is still a strong tendency amongst German scholars to read the passage in this way, seeing it as referring to a specific frontier building programme in the 90s (eg Planck 1987, 422). However, it is notable that Tacitus' passage, in a work which considers the origins of various ethnic groups, does not imply that the incorporation of the Gallic settlers of the *decumates* had taken place immediately before the time of writing; it merely states that it was a process that began soon after the original settlement of the area. It may mean no more than that Tacitus was aware of the various roads that had been driven into the

Black Forest, and forts that had been planted there, since the Claudio-Neronian period.

The Alb forts are often considered to form a linear system; hence the term *Alb-limes*. Certainly, like the Flavian 'Glen blocking' forts in Scotland, they fall into a line on the map. They lie on the south side of the mountainous Schwabian ridge, having neither a good outlook or strategic command over the area to the north, and the land was not of high agricultural value and lacked a concentration of native population. It has recently been re-emphasised that rather than securing land for strategic or economic advantage, the Alb forts were most probably concerned with the securing of a route between the provinces of Upper Germany and Raetia (Heiligmann 1990, 196-99; Schönberger 1985, 387; Planck 1988, 260). In this way their role was reminiscent of that of the sites founded along the Neckar in the 80s and 90s.

These years saw the first substantial foundations of military sites north of the rest of the Danube in Raetia. Urspring was founded before c100 (Pferdehirt 1986, 287); Heidenheim was added to the east of the Alb forts. Heidenheim itself could conceivably have been founded in the late 80s, but was probably built in the 90s, possessing a similar proportion of Dr29s to the Saalburg (Pferdehirt 1986, 287-88).

1.6.2 The road to the Nördlinger Ries (The *Römerstrasse*)

At the same time sites were advanced along a road going northwest from the Danube via Kösching. The road was not part of the system of communications providing ever more direct links between Upper Germany and Raetia. Rather its purpose seems to have been to enclose, and plant garrisons by, tracts of fertile land lying north of the Danube; the presence of a network of prehistoric roads and an ancient iron-working

industry in the region (Brogan 1935, 9) attests the wealth and populous nature of the area.

The situation of the road is reminiscent of the Flavian penetration route in Scotland north of Camelon, which skirts Fife and runs along the edge of the Highlands; and the Raetian example must have an early date. Weissenburg, 60km along the road, northwest of the Danube, appears, on the basis of its proportion of Dr29s (Pferdehirt 1986, 292) to have been founded by the 90s or quite possibly slightly earlier. This dating has been confirmed by more recent excavation, which also suggests that the fort housed an *ala* from the beginning (Grönke and Weinlich 1987; 1988). Kösching is traditionally dated by an inscription to 80. On the basis of an absence of Dr29 Pferdehirt (1986, 292-93) has proposed a foundation date after 100 and suggested that the inscription might have been carried from nearby Oberstimm for re-use. However, as the analysis of the pottery is based upon only 19 vessels, it seems better to take the inscription at face value. The lack of early pottery may be explained by the possibility (Baatz 1975, 273) that the earliest fort lies slightly south of the known stone fort.

If there was a fort at Kösching by *c*80, and Weissenburg was founded by the 90s, we might expect the fort at Pfünz, guarding the point where the road crosses the Altmühl, to fit with these dates. Again, Pferdehirt (1986, 292) has dated it to after *c*100 on the basis of its absence of Dr29s, but as we have established, this need not preclude a foundation date in the 90s.

Between Heidenheim and Weissenburg, both founded by the 90s, lay the fertile basin of the Nördlinger Ries, and it is just possible that this area was also garrisoned before the end of the first century. The sites in question are Oberdorf, Munningen and Nördlingen. Neither of the former two, which have been excavated, nor sites immediately to the north (Unterschwaningen, Gnotzheim), have produced any Dr29: but it

is not possible to preclude a foundation date before *c*100 for any of these sites. Indeed, some (RiBW, 53) have placed them as early as the 80s, though without detailed argument. At Munningen a dendrochronological date from timber associated with a repair to the defences was 104+\-20 (Pferdehirt 1986, 290 for ref.). Pferdehirt denies that this suggests a foundation in the 90s by arguing that the defences may have been weakened in a landslip in the first major rainfall after their construction. All that can be concluded at present, then, is that within the date range *c*90-*c*110 the garrisoning of the Nördlinger Ries took place; more probably in the 90s.

1.7 Developments on the Raetian Land Frontier *c*100-*c*110 (Fig 9)

1.7.1 The Alb

Some time in the early second century a route was established between Köngen and Urspring and/or Heidenheim, thus advancing the military network beyond the *Sibyllenspur* area, and shortening the distance between the Neckar and the Alb. The route was secured by a fort at Eislingen, discovered from the air in 1966 (Schönberger 1985, 469). Although thought to be of early second century date, this timber fort of 2.20ha is not closely dated.

1.7.2 The road to the Ries (The *Römerstrasse*)

Installations continued to be added to the road that ran northwest from the Danube, via Kösching, towards the Nördlinger Ries. By about 110 (Pferdehirt 1986, 295) Pförring had been provided on the north bank of the Danube.

The first decade of the second century perhaps saw the beginnings of a screen of forts to the north of the Nördlinger Ries, with sites at Aufkirchen (unproven), Unterschwaningen and Gnotzheim. Unterschwaningen, timber and only 0.70ha in size, has produced only tiny amounts of pottery (Pferdehirt 1986, 290-91, 245). The neighbouring fort of Gnotzheim (2.20ha in its eventual stone form) has produced only Dr37, suggesting that it was not founded until after *c*90 (after *c*100 on Pferdehirt's reckoning); perhaps it was founded at the same time as, or slightly later than, the Ries forts.

North of the road on which these forts lie, and to the east of Gnotzheim, a timber fort was established at Theilenhofen, whose foundation has been placed at various dates around *c*100. It has, from 48 vessels, produced no Dr29, yet has a high percentage of South Gaulish samian (Pferdehirt 1986, 291), which ought to imply that it was founded before *c*110. It is interesting that it has been noted (H-G Simon, cited in Pferdehirt 1986, 291) that 'die frühesten Theilenhofer Sigillaten junger...als das aus den wohl in spätdomitianischer Zeit angelegten Kastellen Gnotzheim und Weissenburg bekannte Material...'. Of these sites Gnotzheim is also dated by Pferdehirt by its absence of Dr29s to after *c*100, but the observed differences in the finds from Gnotzheim and Theilenhofen would suggest that at least some sites which have not produced Dr29 may have been founded as early as the 90s. The model that emerges, then, is of Gnotzheim being founded on the road by *c*100, with Theilenhofen being added only a few years later.

While the earliest known fort at Theilenhofen is full-sized, Unterschwaningen was of only 0.70ha and possessed only two gates. It is interesting in this connection that another site north of the road, near the later frontier line, Ellingen, seems on the basis of its early finds (1:19 Dr29, 10.20% South Gaulish; Pferdehirt 1986, 291-92), almost certainly to have been founded before *c*110. Ellingen was formerly supposed to have a Hadrianic or Antonine origin (Schönberger 1985, 486),

despite the discovery of an earlier timber fort in the excavations of 1980-82. After the excavations a foundation date of *c*115-125 was suggested (Zanier 1987, 47-9).

The tendency of the foundation date of individual sites to be pushed back as investigation proceeds is interesting, for there are other key sites which may respond to such treatment. For example, the small fort at Gunzenhausen, guarding the point where the later frontier line crosses the Altmühl, is conventionally dated to the mid-second century (Baatz 1975, 236; Schönberger 1985, 486; Ulbert and Fischer 1983, 70); but the site is built over and little investigated since the ORL account; a timber predecessor fort could easily await discovery, as in the case of Ellingen, and the possibility that, with other sites on the forward frontier line, it was really founded before *c*110, cannot be ruled out. It appears as an open square on the *c*100-*c*110 map (Fig 9).

1.7.3 The beginnings of a formal frontier line in Raetia

The date of the establishment of a formal frontier line on the most northerly sector of the Raetian military dispositions remains unknown. It is not possible to argue for the date of the earliest watchtower line in the same sort of detail, on the basis of the ceramic evidence for the origin of small installations, as has been attempted for the Upper German frontier. Although the watchtower system in *Strecke* 13, the most northerly part of the Raetian frontier, is reckoned to have been the earliest element - Baatz (1975, 235), for example, raises the possibility of the provision of towers and a patrol track as early as the Trajanic period - this dating must be argued on the basis of a dead reckoning back from better dated later developments and their relationship to those on other parts of the Raetian line.

In addition, the indications considered above (1.7.2) of early foundations at Theilenhofen and Ellingen, each apparently associated with the frontier line rather than the rearward road, would support a Trajanic dating, although not prove it. Gunzenhausen, as we have seen (1.7.2), may have originated this early, despite its conventional mid-second century foundation date. Although a recently discovered short-lived timber fort of the late-Trajanic or early-Hadrianic period at Weissenburg-Breitung, only 1.50km from the known *ala* fort at Weissenburg (which was in existence by the 90s) has been interpreted as temporary troop accommodation during the first layout of the linear frontier in *Strecken* 13 and 14 (Hüssen 1991), it is possible that the site is not as early as those of Ellingen and Theilenhofen. It is not clear whether this means that Theilenhofen and Ellingen stood for some time without a linear frontier, or whether the purpose of the site at Weissenburg-Breitung has been misunderstood.

It would be unwise to use the date of the abandonment of forts in the Nördlinger Ries to deduce the date of construction of the first linear frontier to the north. Their end-date is only poorly understood, and in any case their is no reason why some or all of them might not have continued in occupation after the layout of the frontier line had begun.

From the evidence of the Dalkingen sequence and dendrochronology (4.5 below), the earliest running barrier (a '*Zaun*') in *Strecke* 12 to the west was probably provided by the 140s. Its different character from the earliest barrier in *Strecke* 13 - a palisade - suggests that the latter was of different, and presumably earlier date, as *Strecke* 12 evidently represents an extension of the frontier line to the west. If the earliest palisade was Hadrianic (perhaps having its western termination at the double watchtower 13/22-23), as we might expect, its later replacement by a *Zaun* might be explained. By, say, the 140s, parts of the earliest palisade may have decayed enough to warrant piecemeal replacement (presumably at

a date before the mid-Antonine completion of the frontier in *Strecke* 12, when the *Zaun* there (of c140) was replaced throughout by a substantial palisade). If we are right in guessing that the palisade in *Strecke* 13 might originate under Hadrian, it is of interest that it apparently post-dates a timber watchtower (13/43), supporting at least the possibility of a Trajanic date for the earliest layout of towers.

How far the earliest watchtower system extended to the east is not clear: there is a general assumption amongst German scholars that the system must have originally terminated at some point after ascending the high plateau of the Jura, only later being extended to the Danube via the Altmühl crossing at Böhming. Whether this extension had taken place by the Hadrianic period, or occurred somewhat later, cannot be determined. The presence of the *'Bretterzaun'*, a replacement of the original palisade, itself preceding the *Flechtwerkzaun* (4.5 below), may be a clue to the limits of the oldest stretch (the oldest parts requiring the most replacements of their timber continuous barrier). The last known occurrence of the *Bretterzaun* is at 14/50 (ORLA 14, 92), suggesting that the original watchtower and palisade line may have terminated near Petersbuch, where the completed line makes a sudden change of direction. Whereas the *Flechtwerkzaun* occurs in *Strecke* 15, the *Bretterzaun* does not occur this far east.

Another possibility may be that the original layout of towers ran as far as Raitenbuch, where the *Römerstrasse* turns to run southeast to the Danube, and that from this point on the forts along the road were originally considered sufficient protection; across the high plateau of the Jura infiltration was considered less likely to occur than through the openings into the Ries enclosed by the frontier further to the west, and a linear frontier at first thus considered unnecessary. Down into the reign of Hadrian, however, the area to the west of the earliest tower system (west of 13/22-3?) remained occupied by a fluid system of roads and garrisons. West of Böbingen, this

would be the case down to the reign of Pius or Marcus. The area of the Neckar and western Raetia seems to lag behind; here the choice of a final frontier line was long delayed. For whatever reason - the possibilities are discussed below (3.5) - it was felt that the military situation in the re-entrant was likely to be a short-lived one; here change could still take place. In this part of Europe the Romans were to choose their frontier at their leisure.

Chapter 2

FLAVIAN AND TRAJANIC LINEAR FRONTIER DEVELOPMENT IN BRITAIN

2.1 A pre-Flavian linear frontier in Britain?

In Britain, as in Germany, there has been a tendency for retrospective knowledge of the development of linear frontiers in the late-first and second centuries to influence interpretations of earlier military dispositions. The most celebrated example of this is the supposed Fosse Way frontier, argued by Collingwood and later scholars to have been drawn up behind Trent and Severn shortly after the completion of the over-running of lowland Britain. Collingwood himself invented the notion and dated the supposed linear arrangement of sites along the Fosse Way to the Scapulan period (47-52) (Collingwood 1924). Webster realised that such a frontier would have been left behind by the Scapulan assault on Wales and the offensive transfer westwards of *legio XX*; rather than taking this as evidence that such a frontier was never conceived of, he chose to elaborate the theory and to re-date the construction of the frontier to the governorship of Aulus Plautius, seeing the earliest Claudian ambitions as being limited to the conquest of lowland Britain, this a policy to be overturned under the succeeding governor (Webster 1958; 1970; 1980).

While it is not possible to disprove the theory of a Fosse Way frontier, it must be pointed out that there is no direct evidence to support it. The literary accounts of the conquest of Britain give us no reason to believe (in spite of Collingwood's adoption of Bradley's famous emendation of the text of Tacitus) that the conquest was initially meant to be a

limited one. If this was the case, it was an idea that was overturned almost instantaneously, and even the proponents of a Fosse frontier must admit that it will have been over before it had even begun. The text of Tacitus, as emended, need mean nothing more than that a line was perceived beyond which squads of soldiers could not safely be sent in to disarm and terrorise the locals; in other words a distinction was recognised between a zone where occupation required consolidation, and zones where either warfare was still taking place, or where the existence of clients (such as the Brigantes north of the Trent) prevented direct interference. It does not in any way imply that the conquest was not always meant to continue.

More concretely, there is no evidence, as Maxfield (1986; 1989, 26-27) has pointed out, that any except perhaps three of the sites along the Fosse (Cirencester; Bath? Lincoln?) are as early as the Plautian period in date. To have any significance as a linear frontier system all of the sites associated with the road would have to be Plautian. Even on the most generous acceptance of early fort sites as being this early, we are far from arriving at a recognisable frontier system. Frere (1987, 79) writes: 'The spacing of the sites at Broxtowe, Mancetter, Alcester, Gloucester and Sea Mills at uniform distances apart and at a uniform distance beyond the Fosse Way is systematic and significant...' However, these sites are all spaced at intervals in excess of 40km (Webster 1980, 121; Maxfield 1989, 27); rather than tending to suggest a linear frontier, this is well in excess of the spacing often seen between garrison forts to maintain road security in conquest areas.

But most importantly, the tendency of these sites to fall into a linear belt relies upon the belief that nothing in advance was yet held. Yet there is no sufficiently close dating evidence to differentiate clearly between the period of occupation of these sites and similar sites to the north and west, whose occupation at the same time would make the forts

along the Fosse become simply a disposition within a general network of military occupation.

It will also be one of the conclusions of the comparative study (3.3 below) that there is no circumstantial reason to expect a linear frontier in Britain at this time. To postulate the Fosse Way frontier is to demand that artificial frontier systems could be constructed on the basis of a policy that was likely to be overturned the following year; or that frontier systems were constructed as temporary solutions to short term problems in the course of wars of conquest. The former of these circumstances occurred very rarely (if at all) during the whole history of the northwestern frontiers; the latter, never. Frontier building in general represented a permanent investment and acceptance of a situation; it is very hard to see this being the case in Britain in *c*47. Decisive, also, is the absence of the continuous systems of towers which characterise the earliest artificial land frontiers.

Significantly, the Fosse Way remained an important arterial road throughout the history of Roman Britain (and beyond: Maxfield 1989, 27); yet one of Collingwood's starting points in deducing a frontier had been its supposed uselessness as a traffic route. It is also notable that when, in the aftermath of the Boudiccan rebellion, Roman military advance was halted on the threshold of Brigantia for at least ten years, no frontier system, linear or otherwise, seems to have come into being. Indeed not until military advance reached the northern parts of Scotland, more than a generation after the proposed Fosse frontier, did thoughts really turn to an artificial linear frontier in Britain. However, the date and circumstances of its construction are much debated.

2.2 The Flavian Frontier in Scotland

2.2.1 The Gask Frontier (Fig 14)

Early observers were aware of the Roman road which, having come from Camelon, runs from Ardoch to Strageath, and then along the northern ridge of the valley of Strathearn towards Bertha. Certain works associated with this road were first noticed by Thomas Pennant (correspondent of the naturalist Gilbert White): 'Pass by the great plantation at Gask Hall; in these woods is a small circular entrenchment, and about half a mile further on Gask Moor is another...and between this and Innerpaffrey are two other similar, placed as near that everything that stirred beneath, or at a certain distance around, could be seen' (1776, 90).

Now some 17 of these earthworks, strung along the road from south of Ardoch to Bertha are known (Maxwell 1989, 118-21). They fall on either side of the road; they are never separated by more than one kilometre, and usually by much less. Each excavated example has proved to be a ditched and banked enclosure, with a causeway facing the road, and containing four corner post holes to support a tower. Each site would have had an uninterrupted view of its neighbours. The towers were, on average, 3.05m square.

Despite Pennant's early observation that the close spacing of the sites enabled all-round supervision, with the implication that the towers constituted a form of security cordon, modern archaeologists tended until recently to see them as a lateral signalling system, and 'signal station' was the term usually employed for these sites (Crawford 1949, 32; Robertson 1974).

By 1970 it was realised that the Gask towers, too closely spaced to be intended merely for signal-transmission, formed an artificial frontier line (Daniels 1970, 93), whose closest

parallels lay on the German frontier between Rhine and Main. As Pennant had realised, they were watchtowers, forming a line of control. A mortarium rim from the Gask House site has been dated to the period *c*70-95 (Robertson 1974, 20-21); on the basis of this and the similarity of the towers to structures supposed to be of Domitianic date in Germany, a Flavian date for the Gask towers has been generally accepted.

As more elements of the Gask frontier come to light, it is seen more and more to resemble the early German watchtower frontiers. Besides the towers themselves, the system consists of fortlets right up on the frontier line. Kaims Castle has long been known, and most probably forms part of the system, while a new discovery lies 8km away, south of Ardoch, at Glenbank (Maxwell and Wilson 1987, 16-17). At just under 0.10ha in area, these fortlets are closely comparable to examples such as Butzbach on the Upper German frontier, and are also similar in that they seem to have worked in close proximity to auxiliary forts. A square ditched enclosure of similar size detected from the air within the marching camp at Innerpeffray (St Joseph 1958, 90) may just represent a permanent fortlet of similar type. The known auxiliary forts of Ardoch, Strageath and Bertha complete the system. The observation that the positions of towers north of Ardoch seem to have been surveyed in units of distance relating to the north gate of that fort (Hanson 1987, 155-57) provides important evidence that the auxiliary forts were in use at the same time as the towers.

The Gask system is certainly the earliest artificial linear frontier that can be detected in Roman Britain. Indeed, it is arguably the only artificial frontier to be seen in Britain before Hadrian's Wall. Unfortunately its context cannot be closely established, despite the general agreement as to its Flavian date. All that can be done for the present is to outline the movements of the Roman army on the northern frontier of Britain, as best they can be established, and point

to those contexts where the Gask tower system might best fit. Most commentators in the last twenty years have preferred to see the Gask frontier as being part of a staged withdrawal, occurring after the final abandonment of ambitions to conquer the whole of Scotland, or at least to garrison a legion there - this abandonment graphically attested by the unfinished legionary fortress at Inchtuthil. An alternative view has, however, recently emerged.

2.2.2 The Gask Frontier in Agricola's Fourth and Fifth seasons?

By the end of his third season (79 or 80), Agricola had carried Roman arms as far as the river Tay (*Agr.*22). For the following two seasons (80 or 81 and 81 or 82) something made Agricola mark time and, we are explicitly informed in the *Agricola* (23), the situation almost arose where *inventus in ipsa Britannia terminus*. The incipient *terminus* was specifically located by Tacitus as lying on the Forth-Clyde isthmus, *quod tum praesidiis firmabatur*. After the two seasons' halt, advance was resumed, culminating in the victory at Mons Graupius in Agricola's seventh season (83 or 84).

The two-year halt is very convincingly explained as being brought about by the death of Vespasian. On the early chronology for Agricola's governorship (77-83) these two years, 80-81, would coincide exactly with the principate of Titus, who may have intervened personally to halt the British war, only to have Domitian reverse this policy after his death (Breeze 1988, 16-17).

There has been a long, traditional quest for the archaeological evidence for the physical frontier that Tacitus states was constructed in these two years of inertia. In the past Tacitus has been taken at face value in his clear statement that the terminus consisted of forts strengthening the narrow isthmus

between Forth and Clyde (*Agr.* 23), and until very recently the Agricolan sites were not unnaturally sought beneath the Antonine Wall forts which lined a frontier across the isthmus at a later date. The enclosure detected beneath the fort of Bar Hill was once unquestionably that fort's Agricolan predecessor (MacDonald 1934, 271-73). A similar enclosure pre-dating the fort at Croy Hill was inevitably interpreted as an Agricolan *praesidium* (*ibid.*, 267-69).

As early as 1960, however, K Steer had expressed doubts about the Agricolan date of these enclosures; subsequently, doubts have grown about the necessity to search for Agricola's *praesidia* beneath the Antonine Wall forts. As early as 1970 the suggestion was made (Daniels 1970, 92) that the sites of Agricola's fourth and fifth seasons may actually have lain north of the isthmus. This possibility has been seen (Maxwell 1984) to be strengthened by the discovery of a Flavian fort at Doune on the Teith.

Meanwhile, re-excavation has shown the Croy Hill enclosure to be Antonine (Hanson 1979, 19), and the Bar Hill *praesidium* to have been open immediately before the construction of the Antonine fort there (Keppie 1986). There is no other structural evidence for any other Antonine wall fort having a Flavian origin, although on the basis of finds, Mumrills, Castlecary and Cadder have in the past been considered as originating this early.

The possibility has been raised that, if the frontier of *c*80-81 is to be sought north of the isthmus, then the Gask frontier may be associated with it. Certainly the Gask frontier must belong either between *c*80 and *c*84 (ie in Agricola's governorship), or to the very end of the Flavian episode in Scotland: for in the period *c*85-*c*88 there was apparently an arrangement of forts that could hardly have co-existed with the Gask towers. To the north and west of the forts (Ardoch, Strageath and Bertha) on the road over the Gask which at some

time formed a linear frontier, there lay another line of Flavian military sites, gradually converging on the road northeast (Fig 13).

This outer line consisted of forts placed in the mouths of the highland glens (Drumquhassle, Malling, Bochastle Dalginross, Fendoch), and at the crossings of rivers emerging from the Highlands (Cardean, Inverquharity, Stracathro). There was also the legionary fortress at Inchtuthil. With one possible exception, those of the 'glen' forts which have been excavated appear to have had a single, extremely brief period of occupation, before being carefully dismantled and abandoned. Inchtuthil itself was still incomplete when its demolition began at some date later than 86.

The 'road' forts and the 'glen' forts could have been held simultaneously: but it is hard to see the Gask towers coexisting with the 'glen forts'. The towers were not road stations, but rather, on the clear analogy of the earliest of the German watchtower systems, an artificially delineated border surveillance system. For the towers and their accompanying forts and fortlets to have lain 5-8km behind an arrangement of auxiliary forts and a legionary fortress would have been inexplicable and unparalleled. The Gask frontier was intended to be a permanent drawing up of the border line at the limit of Roman occupation. As such it must either pre-date or postdate the system of which Inchtuthil formed a part.

The idea that the watchtower system might be earlier than the advanced 'glen' forts gains increasing support. Frere (1981, 96) has suggested, and Hanson and Maxwell (1983, 41) have acknowledged, the possibility of the towers belonging to the Agricolan advance of 79 or 80, or to the two year inertia when the frontier lay on the isthmus in 80 and 81 or 81 and 82. C M Daniels has argued (1988, 261) that the circumstances of Inchtuthil's abandonment point to a more final and drastic withdrawal than a mere retreat to build the Gask frontier would

have involved. It is argued that the elaborate nature of the precautions to stop iron from falling into hostile hands and the massive nature of the abandoned stock - over 875,000 iron nails buried in a specially prepared pit dug four metres into the earth - shows that the Romans were clearing out of the whole area, and withdrawing in one fell swoop to the lowlands and points south of Newstead. If this is accepted, the only possible context for the towers is much earlier, under Agricola.

If the construction of the frontier is to be placed thus early, it would seem preferable to associate the towers with the two year halt rather than with some stage of Agricola's advance. It is the only convincing context. It is important to stress that for the watchtower system to have played a part in some fluid advance would have been utterly without parallel. None of the watchtower systems on the continent ever functioned in this way; the association of the Taunus-Wetterau towers of Upper Germany with Domitian's Chattan War is a purely traditional one, unsupported by the archaeological dating evidence (1.1 above). It is quite possible to square the location of the Gask frontier with Tacitus' description of the *praesidia* on the isthmus: although that writer specifically places the *praesidia angusto terrarum spatio*, there is no need to think that he is using any greater geographical exactitude than was usual in the Agricola. A disposition of forts in an arc north of the isthmus, as suggested by Maxwell (1984; he includes Dumbarton, Drumquhassle, Malling, Bochastle, Doune and Stirling as his proposed *praesidium* sites) could easily be accommodated by the text. More importantly, such an open disposition would leave unprotected the Fife peninsula, with whose inhabitants there is reason to believe the Romans cultivated a friendly relationship, and thus perhaps necessitate a watchtower frontier in the limited sector between the Forth and the Tay. The Gask frontier would divide the Fife peninsula, with its absence of known Roman forts and close

communication with the pro-Roman Votadini, from the Caledonians.

Indeed, the idea that the Gask towers could have formed a far-flung annexe to Agricola's stop-line of *c*80-81 may even be thought to be supported by Tacitus' text, which asserts that once the *praesidia* had been established, *omnis propior sinus tenebatur, summotis velut in aliam insulam hostibus. Omnis propior sinus* has usually been taken to mean '"the whole sweep of country nearer" (i.e. southward)', in other words the area south of the isthmus. It is possible, however, to see how *sinus*, in its sense as a projecting piece of land (Ogilvie and Richmond 1967, 234), may have referred to the projecting sweep of land enclosed by the Gask system north of the isthmus. *Omnis propior sinus tenebatur* could clearly be translated: 'the whole of the nearer projecting curve of land [i.e. the Fife peninsula] was held'. Whether or not this is considered evidence for the Gask towers dating to this time, the Agricola taken at face value certainly suggests that Agricola's arrangements during his fallow years included control of the Venicones north of the isthmus. This should hardly be surprising, for Agricola is said (Agr. 22) to have penetrated as far north as the Tay in his third season.

The view that the Gask frontier predates Mons Graupius - and the building of Inchtuthil - has received considerable additional support from the recent study by Hobley (1989) of Domitian's coinage in Britain. Hobley suggests that the absence of asses of 87 from forts north of the Tweed indicates that if the Gask frontier operated after the abandonment of Inchtuthil, it will have stood without the support of forts further north than Newstead. The thesis relies on the point that as coinage of 86 and 87 (and of no other years in Domitian's reign) is known to have arrived in Britain in massive quantities (Tomlin and Walker 1988, 286-88), the absence of asses of 87 on sites where those of 86 are present, shows that the garrison had departed in the meantime. At sites

such as Strageath and Elginhaugh, the latest asses are of 86. At Newstead asses of 87 occur. On this evidence the idea of any military occupation north of the Tweed after 86, including a Gask frontier of this date, becomes difficult to sustain.

2.2.3 A later dating for the Gask Frontier?

However, an date of c80-81 for the Gask frontier seems rather at variance with the date of the building of the exactly analogous Upper German frontier. It has often been stressed (eg by Breeze 1982, 63) that the similarity of the Gask and Taunus-Wetterau systems should imply contemporaneity. If this be the case, the evidence would seem to be pulling in two directions, for it is hard to see the continental watchtower systems originating before *c*90, a decade later than the latest possible Agricolan dating for the Gask.

The other point about the continental analogies is that it is clear that permanent frontiers only came into being beyond Rhine and Danube when dispositions had unmistakeably and irretrievably fossilised. This is discussed below (3.1.4): it is clear that frontiers were not constructed lightly, or while wars were still going on. Once established, the formal frontiers between Rhine and Main were to endure, without movement back and forth, until the third-century crisis. The watchtowers of the Gask frontier unmistakeably constitute a formal frontier system of the same kind.

Now it does seem that there was a change of policy upon Titus' accession which affected Agricola's progress in Britain. The decision to build a frontier in Upper Germany seems to have followed on from Danube crisis and troop withdrawal. There was no such crisis during the reign of Titus, and no reason to believe that troops were withdrawn from Britain. Nor can any true parallel be found for a watchtower frontier so rapidly constructed - and abandoned - on a mere imperial whim. The

Gask frontier could fit here, but it would serve a much more intelligible purpose as the frontier of northern Britain after the debilitating withdrawal of a legion after 86; when the idea of a legion for offensive purposes in Scotland had become a dead letter. The later date would also bring the Gask frontier much closer in time to its continental counterparts. Unlike the continental frontiers, it was soon abandoned, but this is the only respect in which the frontier at the later suggested date would have been exceptional, and this can be explained by the special circumstances in which troops were withdrawn from Britain to meet the emergency on the Danube.

There remains the absence of asses of 87 in the forts - such as Strageath - which would need to be garrisoned with the Gask frontier. Hobley's challenge is powerful: if one is to suggest that forts north of the Tweed were held after Inchtuthil, one is forced to argue that the asses of 87 behaved in a different way to those of 86. Hobley's argument depends on the following assumptions:

1. It is implicit in Hobley's thesis that a primary purpose of the imports of freshly minted asses of 86 and 87 was to pay the army, and that the issues were immediately distributed to all occupied military sites: 'none of this vast input [of asses of 87] were sent directly to Wroxeter as there were no troops based there' (Hobley 1989, 72 and note 14). Therefore the issues of 86 and 87 rapidly, and at equal rates, reached the army on the frontier.

2. The issues of 86 and 87 are both well represented on British sites occupied in the reign of Domitian.

It seems that the absence of the issue of 87 from the northern Scottish sites must be accepted; although the numbers of coins recovered is small, the fact that when all of the sites are taken together, there remains an entire absence of the 87 asses north of the Tweed, must be regarded as significant. It is not

intended here, then, to question Hobley's conclusion on the basis of the numerical size of the sample. So, if we are to argue that forts north of the Tweed were held for a short time after the arrival of the 86 issue, we must propose an explanation of why the next year's issue never arrived at these sites.

Regarding the first assumption, it cannot be proven that these issues were immediately distributed to all frontier sites. Walker (Tomlin and Walker 1988, 286-8) argued that these special issues of bronze under Domitian were one-off imports designed to introduce small change into Britain, or rather into the pockets of soldiers and salaried civil servants in Britain.

If the 86 and 87 *asses* arrived in special inputs, the possibility arises that the inputs were sent to special target areas, or central points of storage and distribution. No doubt the generality of army pay arrived in consignments at specific points, but because it normally consisted of old coinage, this is not now apparent from finds of coins. This is not to resort to the old notion of the 'drift' or 'time-lag' in the arrival of artefacts on the northern frontier, which formed such a point of contention in a former debate about the date of the first Roman abandonment of northern Scotland (Pryce and Birley 1935, 68-9; MacDonald 1935, 197). That will not work in this case, for whatever delay there was in coins of 86 reaching the frontier, given the same time-lag, the 87 issue should have arrived the following year. However, if the special inputs were sent directly to legionary fortresses, rather than the generality of frontier forts, it can be seen exactly why no *asses* of 87 arrived north of the Tweed even though sites there may still have been occupied. Between the arrival of the 86 issue and the 87 issue, Inchtuthil was finally abandoned, and the Inchtuthil legion withdrawn from its offensive position in Scotland.

Of course, these coins did reach non-legionary sites. The suggestion here is that this was some time after their arrival as a special input at a legionary centre. This brings us to the second of Hobley's implicit assumptions: that the vast inputs of 86 and 87 leave their traces in the coin records of all British sites occupied at the time of their arrival. This is not in fact the case. Hobley himself is forced to address the problem of certain sites in southern Britain, where although *asses* of 87 are present, they occur in a much smaller proportion than the issue of 86. The sites are Wroxeter and Richborough; Hobley (1989, 72) explains the disparity in terms of the departure of units from these sites. The base of *legio XX* at Wroxeter is seen as being given up in favour of Chester upon the withdrawal from Scotland; at Chester coins of 87 predominate; the legion had arrived there in time to receive the input. He speculates that the unit at Richborough may have left for the continent at this time. Yet occupation of these sites continued; at Wroxeter the legion may have left but the inhabitants of the new city remained. Hobley's own explanation points to the possibility that, rather than arriving uniformly at all sites, the inputs of 86 and 87 followed the legions.

Thus one alternative explanation for the absence of the 87 issue in north Scotland might be that when these coins arrived in Britain, the most northerly legionary base was now that of *IX Hispana* at York. Inchtuthil had served as a reception point for the input of coins minted in 86; it was no longer there to receive the coins minted in 87. Of course, coins of 87 would have reached the units in the far north in time, and it is to be expected that legionary detachments were active in the construction and operation of any post-Inchtuthil frontier in northern Scotland. *Asses* of 87 eventually reached Newstead (where legionaries were present). So, if the absence of the 87 issue may not prove that all Scotland north of the Tweed was immediately abandoned with Inchtuthil, it does show that if there was continued occupation it was of an extremely brief duration.

To summarise: it would be tempting to suppose, on the analogy of events on the Continent, that the Gask frontier in Scotland did not originate until a legion had been withdrawn and the final offensive against the Highlanders cancelled as a consequence. To date the frontier to the time of the abandonment of Inchtuthil seems at first sight at loggerheads with the absence of *asses* of 87 in the northern forts. However, if the arrival of a huge, special consignment of *asses* is linked to the presence of a legion at Inchtuthil, the absence of the legion after the abandonment of the fortress may provide a reason for a more gradual distribution of the *asses* of 87 to the northern sites, and allow a very short period of occupation after the legion's departure - say up to two or three years - to be postulated at the forts related to the Gask frontier. If Inchtuthil was being dismantled in *c*87 or *c*88, this would make the construction of the Gask system as exactly contemporary with events in Upper Germany as archaeological dating evidence will allow. Many will prefer to find Hobley's argument decisive; here it is suggested that the evidence at least leaves open the possibility of a later date for the Gask frontier.

It is worth noting that if the later dating of the Gask system is preferred, it does not mean that we have to dispense with the meaning of Tacitus' *propior sinus*, secured in Agricola's fourth and fifth seasons, as land north of the Forth-Clyde isthmus. Even if the Gask towers were not built this early, the forts of Ardoch, Strageath and Bertha probably were. While clear about the halt on the isthmus in seasons four and five, Tacitus implies that forts existed to the north. 'There was even time for the establishment of forts' (*Agr.* 22). In the sixth season the Caledonians 'went so far as to attack some... forts' (*Agr.* 25). The statement of Tacitus that some faint-hearts advocated retreat behind the Forth, because 'evacuation was preferable to expulsion' - *cedendum potius quam pellerentur* - would seem to confirm that Agricola had indeed

established forts north of the isthmus before the great advance of his last two seasons. During the two-year halt, Ardoch and the road forts may well have comprised part of the *praesidia* of the *terminus*. They could have fulfilled this function without the cordon of towers, so characteristic of a later stage of frontier development.

As both the coins and the samian pottery from the sites north of the Tweed indicate, the final Flavian frontier in north Scotland (if we are right to postulate its existence) was very shortly given up. The forts and the towers were deliberately dismantled.

Permanent linear frontiers were not built capriciously, and not liable to move back and forth in fluid military situations (3.3; 6.4 below). In this light it is important to attempt to explain this second, more drastic phase in the abandonment of northern Scotland, distinct and later than the legionary withdrawal which may have precipitated the Gask frontier arrangement. The answer may lie in the persistent neglect of the British war, and possible further diminution of the garrison, brought about by repeated crises on the Danube.

The Dacian attack on Moesia in 85-86 had led to the destruction of the governor Oppius Sabinus and a legion (Dio 54.24.3; Mócsy 1974, 82). The concentration of troops on the Danube which followed probably led to the transfer of II Adiutrix and other troops from Britain, and thus caused the abandonment of the Flavian offensive in Scotland. In view of the permanent type of frontier that was now (if the above arguments are accepted) built in Strathmore, we can be sure that the Roman army in Britain foresaw no sudden return of resources from the Danube with which to resume the British offensive. The British war was closed. That is what artificial frontiers in this period always meant. However, sometime after 89 a new war broke out on the Danube: the Suebian-Sarmatian war. Again a whole legion (XXI Rapax) was destroyed. Domitian returned to Pannonia in 92

or 93 in person to deal with the emergency. In preparation, further troops had to be transferred to this sector of the Danube (Mócsy 1974, 84-5).

The interval of time between the two emergencies is exactly right to explain the short-lived Gask frontier and its sudden abandonment. Withdrawal of further troops from Britain soon after 90 leading to the final abandonment of Scotland north of the Tweed would suit both the archaeological and circumstantial dating evidence for the Gask frontier's short life eminently well.

2.3 The abandonment of northern Scotland and the Frontier in North Britain *c*92-*c*105 (Fig 15)

The basic evidence for the abandonment of sites north of the Forth-Clyde by *c*90 is the absence from sites such as Inchtuthil and Camelon of the characteristic latest exported South Gaulish samian products of La Graufesenque (Hartley 1972, 13-14). The samian recovered from Strageath (Frere and Wilkes 1989, 218) conforms to the same pattern, showing that the Gask system cannot have outlived Inchtuthil by long.

This ware is, however, present at Newstead (Hartley 1972, 9; 14). It also occurs at Cappuck and Broomholm (*ibid*., 9-10). Both Newstead and Dalswinton have also produced Central Gaulish samian of Trajanic date (Stanfield and Simpson 1958, 16-17; Hartley 1972, 11). The ceramic evidence has been combined with the structural evidence from certain sites to suggest an occupation of the Scottish lowlands continuing into the Trajanic period. At Newstead, the second Flavian fort was certainly not constructed until in or after 87 (Richmond 1950, 7-11). On the structural evidence alone, these two phases could theoretically pre-date the final abandonment of northern Scotland after *c*90 suggested above (2.2.3); the same could be true of the possible four phase site at Dalswinton, especially

now that suggestions of a pre-Agricolan origin for the site (Hanson 1987, 61-2) have received some support from a Cerialan dendrochronological date from Carlisle (Frere 1990, 320). Indeed the suggestion has recently been made by C M Daniels (1989, 10) that the large second phase Flavian forts at Newstead and Dalswinton were abandoned (along with their companions) and replaced by a series of large forts on the Tyne-Solway isthmus before the end of Domitian's reign.

However, given the ceramic differences between forts north and south of the Tweed, it is clear that the idea of a withdrawal from northern Scotland to the lowlands must be retained; and given the probable survival of the forts associated with the Gask system down to c90, it becomes difficult to compress the histories of the lowland forts, with their distinct ceramic assemblage, into what becomes a five or six year period before the death of Domitian.

Rather it seems best to pursue their occupation into the Trajanic period; this seems the only way to explain the high incidence of the latest type of South Gaulish samian (produced c90-c110 and completely absent north of the isthmus) at Newstead. Not all forts south of the Tweed necessarily continued to be held; Hartley himself (1972, 14) doubted that the lowlands were now very intensively garrisoned. The forts where there is good evidence that activity continued into the Trajanic period are: Newstead (samian), Dalswinton (samian). The forts where there is evidence for possible continuation into the Trajanic period are: Cappuck (samian), Broomholm (samian). Oakwood, Milton and Glenlochar are sometimes added (Breeze 1982, 65) on the basis of multiple structural phases.

No evidence for any kind of linear frontier attached to the network of surviving forts has ever been discovered. It has been tempting to see a linear arrangement in the forts of Newstead, Oakwood, Milton, Dalswinton and Glenlochar, which all lie on a line drawn on the map. The interpretation of this

arrangement of sites has been heavily influenced by the model of later formal frontier systems, as the following passage illustrates: 'Four of the forts in the Scottish lowlands at this time...all on the same axis, were larger than usual...It is possible that these large forts were the bases of garrisons charged with long range patrolling and the maintenance of surveillance over those lands recently abandoned...Such an explanation might account for the occupation of stations further to the north and west...Forts to the rear...also continued in occupation.' (Breeze 1982, 65). All this is possible, but the terms of reference - a line, and troops patrolling an area beyond abandoned apart from some isolated outposts - are really inspired by Hadrian's Wall and its third century outpost forts as portrayed by Richmond in *The Romans in Redesdale* (1940).

Indeed the forts on the axis can be seen simply to be placed in valleys or low-lying areas which penetrate the southern part of the lowlands (with the possible exception of Oakwood, which is only supposed to have continued in occupation on the evidence of structural phases). Lateral communication between the forts on the map alignment would have been arduous, and there is no evidence whatsoever for such a system of lateral communication. More important is the evidence for continuing occupation, perhaps into the second century, at Castlecary on the Forth-Clyde isthmus (ceramic; Hartley 1972, 6-7) and at Loudon Hill (Taylor 1949, 98). It is a very selective use of the evidence to place forts on the 'Newstead-Dalswinton axis' firmly on distribution maps of the period c90-c105 and to add Castlecary and Loudon Hill as uncertain sites: the evidence for occupation this late at some of the forts on the axis is just as circumstantial or slight. The only other resort, if one persists in seeing a frontier line in Britain at this time, is to explain these two northern sites as some sort of outposts (Breeze 1982, 65). If the evidence is taken at face value, and it is realistically assumed that a number of sites must await discovery, this period presents a disposition of forts

surrounding the Lowland hills, placed (on the southern side) in openings penetrating the hill country, and (on the northern side) on low ground, set back from the hills, that was accessible by sea. There is nothing, at present, to suggest the beginnings of any sort of linear frontier system to replace the abandoned line on the fringe of the Highlands. Such an interpretation would find a number of parallels: these and possible reasons for the failure of a linear frontier to appear at this time are discussed below (3.4.1).

'Eventually, by 105 at the latest, even the tenuous grip on the Lowlands had gone.' So concluded Hartley (1972, 15), on the basis of the near absence of Central Gaulish samian from Les Martres-de-Veyre from north of the Tyne-Solway - although pieces do occur at Newstead and Dalswinton; this suggests that these places may have been occupied for long enough for this Trajanic samian, produced perhaps in the period *c*100-*c*120, to have begun to reach them (Stanfield and Simpson 1958, 16-17). The evacuation is conventionally linked to the preparations for Trajan's Dacian Wars (Frere 1967, 122; Hartley 1972, 15; Breeze 1982, 66-67 adds the possibility of further withdrawals for Trajan's Parthian War of 114-117).

2.4 A Linear Frontier on the Stanegate? (Fig 16)

It is still commonly believed that following a complete evacuation of the area north of the Tyne-Solway this line became a defended frontier consisting of a linear arrangement of forts and fortlets along a road: the Stanegate system. The idea originated with R H Forster (1915, 268-89), and the schedule of sites was formalised by Birley (1961, 134-36).

Belief in the existence of a linear frontier system on the Tyne-Solway at this time depends upon two basic theories about the distribution of military sites between *c*105 and *c*120: the first, that the garrisoning of the isthmus was intensified so

as to form a more preclusive chain of installations; the second, that everything north of the isthmus had indeed been abandoned. Here each of these assumptions will be considered in turn.

2.4.1 The installations along the isthmus

Recently B Dobson (1986, 2-4) has carefully reconsidered the evidence for the provision of a linear system of installations. He casts doubt on the belief that forts spaced along the Stanegate at a usual spacing of 20km (1 day's march) had, at some time after *c*105, their spacing regularly reduced by the addition of 'half-day ' forts; he reminds us that of the fortlets supposed to alternate with forts (Birley 1961, 135-6), only two are actually known to exist; and thirdly makes the vital point that the known towers stand in isolation and do not form part of a cordon of the type distinctive on linear frontiers.

Between Corbridge and Carlisle (the only sector where the name Stanegate is correctly applied and the road is known over large distances) there is clearly an arrangement of forts at 20km intervals that is later augmented; to the east and west of this central sector the situation is less clear. The following schedule is intended to demonstrate that the augmentations, and other sites which do not fit into the 20km model (including those known in the east and west 'extensions') may be understood simply in terms of the securing of a line of communication.

South Shields

There was almost certainly a fort at this site by the Trajanic period, as the two clear periods of timber buildings and roads

sealed by the earliest stone fort of the mid-second century imply.

Washing Well, Whickham

The fort of two periods at Whickham exists in isolation of any known road. However, it would be well-placed to oversee a road leading from a port at South Shields inland towards Corbridge, either joining Dere Street south of the Tyne or crossing the Tyne in the vicinity of Wylam. The fort is not placed upon a river crossing; however it may have been situated to allow supervision of the crossings of the closely spaced rivers Team and Derwent from the same site. A clear parallel for this sort of fairly widely spaced provision of military installations along a route joining up important points through rolling country may be found on the eastern Wetterau road between Echzell and Hanau-Salisberg before c100. The spacing between South Shields and Whickham (20km) and Whickham and Corbridge (24km) is rather wider than the average spacing of 11km between installations on the eastern Wetterau road; however, the latter includes fortlets, which may await discovery south of the Tyne. Similarly, a predecessor to Rudchester south of the Tyne would make the arrangement of forts more similar to the German example. The rolling, populous country of this eastern sector is probably the key to the wider spacing here than on the central Stanegate; this is also noted below (3.4.2), where it is shown that although the same sequences of fort types for road supervision occur on the eastern Wetterau and central Stanegate, those on the latter are much more closely spaced, presumably because of the difficult broken country through which the central Stanegate had to run.

In the absence of evidence for the road forming the eastern Stanegate, all must remain speculation (although it will be noted that the eastern Wetterau route, through its redundancy after the first century, has left no certain archaeological

trace). However, there is every reason to suppose that a Flavian-Trajanic site at South Shields would have had a direct link with the interior, and the fort at Whickham points to its existence; the two visible periods at the site supporting the possibility that it continued in use during the Trajanic period.

Corbridge

At Corbridge the discovery (Gillam 1977, 60) of coins of no earlier than 103 under the rampart and in a construction trench of Fort II has generally been used to help to date the abandonment of southern Scotland and presumed establishment of a new frontier system on the Stanegate (eg Breeze 1982, 69; Frere 1987, 108). The most obvious military importance of the site, however, lies not in a role as part of a linear system, but rather in its situation at a major crossroads and river-crossing.

Newbrough

(Birley (1961, 134-36) postulated a fortlet at the crossing of the North Tyne, a fort at Newbrough and a further intermediate fortlet at Grindon Hill to fill the space between Corbridge and Vindolanda in his postulated 'regular' sequence of sites. There is no evidence for the fortlets. One would certainly expect a site to guard the crossing of the North Tyne; in the absence of any candidates, or even knowledge of the whereabouts of the crossing, another suggestion of Birley's, the existence of a pre-Hadrianic site at or near Chesters, comes to mind (*ibid.*, 173).

A late Roman fortlet is known to have existed at Newbrough (*ibid.*, 147-49). The failure to find early material at Newbrough is cited in arguments against an intensification of

garrisons forming a linear frontier on the Isthmus (eg Dobson 1986, 3). However, it is surely possible that an early road station existed here; a site 10km from Vindolanda and about 12km from Corbridge would not be diminishing the spacing to an extent which demanded interpretation as a preclusive frontier system. Sites were as closely spaced across the Stainmore Pass (Bowes and Greta Bridge 8km apart; Brough under Stainmore and Maiden Castle 9km); on the road north into Scotland (where Ardoch and Strageath lie less than 10km apart); and on the eastern Wetterau road of the 90s, where forts were spaced on average 11km apart. Thus, a Trajanic site at Newbrough should be expected (a fourth century site here *ab origine* would be a strange occurrence), but such an expectation should not extend to the return of the regular Stanegate frontier system. The features detected from the air at nearby Sitgate (Frere 1990, 316) may constitute a marching camp and pre-Roman enclosure rather than concealing the earlier site. Although most commentators have rejected Birley's regular scheme, they still follow him to the extent that any earlier site at Newbrough is expected to be a cohort fort: however, a fortlet of some kind is surely a strong possibility, which would increase the Stanegate's resemblance to the eastern Wetterau road and might explain the failure to find early remains outside the perimeter of the fourth century fortlet.)

Barcombe Tower

As Dobson observes (1986, 4), this free-standing watchtower, sometimes considered part of the Stanegate 'frontier' (Birley 1961, 147; Woolliscroft 1989, 6), could easily have served an independent local role as an observation post for Vindolanda.

Vindolanda

Vindolanda has long been recognised as the site of a series of full-sized auxiliary forts originating on the Stanegate in the Flavian period. According to the chronology of the excavator of the early timber forts, the earliest fort of *c*1.40ha was replaced after *c*90 with a larger fort of 2.80ha which survived until the Hadrianic period, although replanned after *c*105 (R Birley in Daniels 1989, 46). However, no account of, or evidence for, this sequence and dating has been published in detail.

Haltwhistle Burn

The key question about this small fort is whether it dates to the late-Trajanic arrangements on the Stanegate, or whether it was first constructed after the commencement of Hadrian's Wall. The matter cannot be proved either way, although the fortlet clearly seems to be aligned upon the Stanegate, and is positioned to guard that road's crossing of the Haltwhistle Burn. This, of course, could well have been a role deemed necessary in the first scheme for Hadrian's Wall. All that can be said is that even if it existed *c*105-*c*120 (the presence of BB1 (Gibson and Simpson 1909, 267 nos. 5, 6, 18, 19) which first appears in the north *c*120, does not rule out such an early date, as the pottery is not stated to have occurred in construction levels) there is no need to see the installation as anything to do with a system of linear defence or even surveillance. Stukely may have sensed correctly when he described Haltwhistle Burn as 'the compass of an inn, or little station for lodging of travellers or soldiers' (1725, 59).

Turret 45a (Walltown Crags East)

This element of Birley's Stanegate schedule was structurally earlier than Hadrian's Wall, although the pottery has been taken to suggest that it was not constructed until the early years of Hadrian (Woodfield 1965, 165-67). Whatever its date of origin this tower could have had an independent free-standing role in relation to Carvoran.

Carvoran

A pre-Hadrianic fort here, for which the structural evidence is gradually emerging (Daniels 1989, 41-43), may have enjoyed an independent role from an early period as a station at the junction of the Maiden Way and the Stanegate (Dobson 1986, 3).

Throp

The well known fortlet on the Stanegate at Throp may have served to safeguard a point where the road crossed the Poltross Burn.

Birdoswald

Birley (1961, 143) supposed structures located by Richmond south of the fort to represent a Trajanic part of the Stanegate system. If either of the remains, or the stone tower located southeast of the fort (Richmond 1931, 130) belong to the period c105-c120, they may well have been isolated installations, not forming part of an overall system, designed to alert Nether Denton to movements to the north of the Irthing.

Mains Rigg

Usually interpreted as a signal-station in the Stanegate system, allowing intercommunication between Throp and Nether Denton, there is no need to see this tower as part of a linear chain; rather than providing a complex alert of infiltrators from the north, such a tower may well have simply provided protection and supervision for travellers on a dangerous length the road.

Nether Denton

As with Corbridge and Vindolanda, this site is best seen as part of a standard provision of garrison forts along a road.

Pike Hill Tower

Another free-standing structure of uncertain date, incorporated into Hadrian's Wall. Again, it could have been a pre-Hadrianic watchtower; again its role may have been related to an individual site, and there is no need to see the tower as forming part of a chain or a linear system. However, its dimensions ('20 feet square': Birley 1961, 140-1) recall exactly those of the tower recorded (Richmond 1931, 130) outside the east wall of Birdoswald fort, as does its massive build. The two towers are equidistant from Nether Denton; they both lie on the crest of the ridge on the North side of the Irthing which impedes the outlook of Nether Denton to the north. It seems possible that they were provided at the same time, but simply as 'eyes' for Nether Denton, and not as part of a general frontier system. Perhaps it was felt that Nether Denton could not be shifted from its place on the road to a position further north.

Castle Hill, Boothby

This is the postulated 'alternating' fortlet between Nether Denton and Old Church, Brampton. There may actually be a military site here: Simpson found a ditch and early second century pottery (Birley 1961, 140). Again, if it is pre-Hadrianic, it could be read in terms of a roadside installation as the Stanegate runs through broken country.

Old Church, Brampton

The same ambiguity as to date prevails here as to previous sites, and the possibility that it forms part of the first scheme for Hadrian's Wall has been considered strong (Birley 1961, 139). But even if this site was added, to close the gap between Nether Denton and Carlisle, in the pre-Hadrianic period, the resultant spacing - 10km - would be close to that on the eastern Wetterau road of the 90s. A possible role for the fort in the first scheme for Hadrian's Wall is discussed below (5.1.6).

High Crosby and the Stanegate to Carlisle

(Birley postulated a fortlet between Old Church, Brampton and Carlisle at High Crosby (*ibid.*, 137-8); there is no evidence to substantiate this (Frere 1986, 383). In any case, the belief that the Stanegate crossed the Irthing at Irthington (north of Old Church) and ran to Carlisle along the north side of the river Eden may be mistaken. Daniels (Bruce 1978, 273) suggested a route going south of Old Church and south of the rivers to Carlisle; and it has been shown (Bidwell and Holbrook 1989, 150-153) that the road taken to be the Stanegate north of the Eden (Birley 1961, 137-8) is probably a service road for Hadrian's Wall. If the Stanegate indeed took the southern

route a fortlet might be expected to have guarded its crossing of the Eden in the vicinity of Warwick bridge.)

Carlisle

The well-attested major military base at this place cannot, at present, be associated with any linear arrangement of installations (except the arrangement of known forts along Stanegate itself). The course of the Stanegate approaching from the east, or of any road leaving Carlisle to run west, is unknown.

'The Western Stanegate'

From Carlisle to Kirkbride on the Solway Firth there most probably ran a road, possibly detected in a few places by G B D Jones and usefully termed 'The western Stanegate' by him (Daniels 1989, 92-95). While it is possible that the observed road may in fact have originated as the service road which probably ran behind Hadrian's Wall in the Hadrianic period (Bidwell and Holbrook 1989, 150-53), the existence of a Trajanic fort at Kirkbride and the pre-Wall sites I and III at Burgh-by-Sands shows that there was probably a road along this line before the time of Hadrian. Professor Jones also claims to have discovered evidence of an artificial linear frontier system of palisade type, running parallel to the road; and the sites of associated isolated watchtowers.

To consider the evidence for artificial linear frontier installations briefly, from east to west:

'Elements in the ditch system around Burgh-by-Sands I may ...form part of a similar [running ditch] arrangement eastwards towards Powburgh Beck' (Daniels 1989, 95).

Burgh-by-Sands

Pre-fort activity: At Burgh-by-Sands I a circular structure interpreted as a watchtower lies beneath the rampart of the reduced earliest fort (Daniels 1989, 23; Goodburn 1979, 281-83).

Burgh-by-Sands I: an auxiliary fort 'enclosing' 2.80ha; later reduced to c1.50ha (Daniels 1989, 23-4). A linear ditch is said to have continued the alignment of the forts' north defences to the west: 'it was sectioned at two points well W of the fort: in one place it was 2.3m wide by 1.3m deep ... A further 65m down the hill-slope was a shallow ditch 1.4m across with a rounded profile. There was a row of palisade-pits on the N side of the ditch, one of which was 42cm across by 36cm deep' (Goodburn 1979, 283).

Burgh-by-Sands III: confusingly, this site is the second of the two forts considered to be earlier than the known fort on Hadrian's Wall. It was of 2.07ha, enlarged to 3.35ha, and is said to have produced pottery of the first half of the second century (Daniels 1989, 24). It lies c1km northwest of Burgh-by-Sands I. The large size (2.07ha increased to 3.35ha) and two period nature of Burgh III (Daniels 1989, 23) could be taken to suggest that the early forts belong to activity on the Stanegate pre-dating the Hadrianic period.

'...north of Far Hill [further west] a V-shaped ditch runs across a ridge from east to west apparently independently of a later farm' (Daniels 1989, 95).

Along Fingland Rigg [midway between Burgh-by-Sands and Kirkbride] 'a running palisade of substantial size was supported by verticals c1.6m apart with smaller, double supports in the intervals. Further west the road was found to be flanked at a distance of 20m by a running V-shaped ditch' (Daniels 1989, 95).

At Easton, north of Fingland Rigg, at either NY 276579 (Daniels 1989, 95) or NY 274579 (Grew 1980, 361) or NY 281578 (Jones 1982, 285) a sub-circular enclosure, some 19m in diameter, bounded by a rampart and V shaped ditch, is claimed as a watchtower site analogous to that underlying Burgh-by-Sands I (Grew 1980, 360-1). It has been interpreted as containing a timber tower and another rectilinear building.

From this structure a ditch 2m wide was traced for 300m west-southwest up onto Fingland Rigg. 'A timber palisade was located on the inside' (*ibid.*). It is not clear whether this means on the south side of the ditch, or literally within the ditch.

On Fingland Rigg aerial survey is said (Jones 1982, 285) to have located 'at least one' and probably two, other circular watchtowers'.

Kirkbride

This fort (Bellhouse and Richardson 1982), probably of Flavian origin, marks the terminus of whatever pre-Hadrianic road system existed south of the Solway, and presumably guarded an important sea-port and, possibly, supply-base.

Discussion of the western Stanegate evidence

It would in some ways be surprising if concrete evidence for an artificial running frontier upon the western Stanegate ever appeared, for no such evidence has ever emerged upon the well-known central sector, where, as we have seen, it is possible to understand the sites usually associated with a 'Stanegate frontier' in terms of the security of a major military road. As it is, none of the evidence for an earlier artificial frontier system has yet been published in any more detail than is presented here. Until it is published in

detail, it is not possible to accept without reservation the existence of a substantial artificial frontier of the sort with which this study is concerned.

The evidence for the fort at Burgh-by-Sands I is convincing. On the published plan (Goodburn 1979, 282), however, the square tower curiously placed in the rampart of the preceding 'watchtower' looks suspiciously as if it belongs within the rampart of the later fort, with which it is exactly aligned. No clear evidence has been published to show that the preceding enclosure cannot have been a native site, demolished to make way for the fort. The early second century pottery cited as dating evidence came from the postholes of the tower (as well as the fort) and so would only date the circular enclosure if the tower definitely belonged to it; even then it would only provide a *terminus post quem* for its demolition. In the similar site at Easton, it is hard to see how the 'tower', rather unconvincingly reconstructed from an irregular arrangement of five postholes, can have been contemporary with the mound forming the enclosure. The rectilinear building is no more substantial or rectilinear than those found by the same excavator at the native farm at Penrith (Higham and Jones 1983, 48), which it will be noted, has a gateway of exactly similar type to that at Easton. At Easton also, the ditch that runs away from the site, interpreted as a frontier *clausura*, is highly reminiscent of the features that run away from the native farm at nearby Silloth (Higham and Jones 1983, 57; 61) and interpreted there as being part of a field system. In general, the frontier '*clausura*', of which no plans or sections have been published, cannot be accepted until it is clearly demonstrated that interpretations of the observed features as native field systems or boundary ditches (cf Dent 1983, 40) have been satisfactorily eliminated. The report of the discovery of an auxiliary fort at Fingland Rigg, between Burgh and Kirkbride, may serve as an example of the way in which the interpretation of features presented in these interim reports may change. Here, in 1979, 'a section across the defences

revealed two ditches, an *intervallum* road and internal timber buildings' (Grew 1980, 361); yet the site is not now considered by the excavator to be that of a Roman fort (Dobson 1986, 27 n.27; Daniels 1989, 92-93).

What we are left with, then, on the 'western Stanegate', is a complex of predecessor sites to Burgh-by-Sands, and a terminal fort at Kirkbride, and good reason to believe in the existence of a road connecting these sites. To this we may add the two suggested towers, which, even if accepted unequivocally, have never been suggested to be part of a frontier cordon. If the claims of a continuous frontier barrier are ever substantiated, the question would remain as to whether such a system might have been a short-lived stage in the Hadrianic reorganisation of the frontier.

It is necessary to mention here a suggestion that has been made to the effect that certain elements of the Cumberland coast frontier system, and certain installations overlooking the Solway Firth, may be pre-Hadrianic in date (Jones 1982, 295-96). The suggestion seems to be based on the belief that one of the Coastal milefortlet sites, MF17, Dubmill Point, shows an earlier phase of ditches; and that an earthwork interpreted as a camp apparently served by the coastal patrol-road running behind frontier palisades at Silloth is 'possibly pre-Hadrianic or early Hadrianic in date'. The significance of the 'early' features at Dubmill Point has not been confirmed by excavation (Bellhouse 1989, 40), while the Silloth camp awaits investigation. The camp looks convincing on the published air-photograph (Jones 1982 plate 30A), and it is puzzling that what is probably the frontier road deviates in order to serve it; however this hardly proves a system pre-dating the known milefortlet and tower cordon. Marching camps abound in the vicinity of Hadrian's Wall and the Antonine Wall, yet these have never been linked with postulated earlier frontier lines. The same argument has been applied (Jones 1982, 296) to a small camp east of Bowness and north of

Hadrian's Wall. One of the reasons for thinking that this camp must be part of some early system is that it is situated to overlook the sea, like the Silloth example; but this does not necessarily suggest a pre-Hadrianic date, any more than the camps north of the Wall at Housesteads and Greatchesters suggest an earlier surveillance system than Hadrian's Wall in the central sector.

The evidence here surveyed has suggested that there may well have been a road, and accompanying forts, passing from sea to sea by the Trajanic period. It has also yielded no convincing indication that these installations were constituted to form a preclusive frontier line. It is easy to see why roads from the coasts would wish to link with the interior; both Kirkbride and South Shields almost certainly guarded ports. It is important not to allow the fact that a route ran from sea to sea to force us to think of it in the same terms as the later Wall of Hadrian.

2.4.2 The abandonment of everything north of the Isthmus

This is the second prevailing theory which influences interpretation of the Stanegate as a linear frontier: the belief that no forts were held north of Tyne-Solway after *c*105. Pryce and Birley (1935; 1938) first saw the significance of the absence of Trajanic Central Gaulish samian from Scotland, and despite the vigorous counter-attack of MacDonald (1935; 1939), their view has held the field to this day. This view is fairly unassailable as far as Newstead, which has produced by far the most extensive pottery series, is concerned; here only two possible fragments of this type occurred; another is known from Dalswinton. This is taken as evidence that these sites were held into the Trajanic period, but not for long enough to receive substantial amounts of this ware. Newstead has tended to carry all other sites north of the isthmus with it; apart

from Dalswinton the northernmost occurrences of this samian type are on Hadrian's Wall and the Stanegate.

However, not many sites south and east of the Newstead - Dalswinton line have been excavated to an extent which has provided a large and reliable pottery series; certainly the samples are a small basis for arguing for the complete absence of a pottery type. In any case, Central Gaulish Les Martres-de-Veyre does not occur as abundantly as its South Gaulish predecessors and the samian types that predominated later. It is suspicious that it is little attested in the new-built forts on Hadrian's Wall, where South Gaulish samian (produced until *c*110) frequently occurs residually (Hartley 1972, 13; 15). At Vindolanda, a site occupied continuously at this time, the ratio of residual South Gaulish to Les Martres-de-Veyre from the recent excavations within the stone fort was 26:10 (Bidwell 1985, 170).

Obviously the near absence of this ware from Newstead is significant, but it is more difficult to place significance upon its absence from such sites as Cappuck, High Rochester, or Broomholm. There is so little recovered from these sites that there can be no certainty, based on the samian, that they did not continue to be held after the abandonment of Newstead and Dalswinton. Not all hold on the area north of the Tyne-Solway was necessarily relinquished with the further withdrawals - whether or not in connection with the Dacian wars - which led to that abandonment.

On the contrary, there are positive indications of occupation continuing here and there north of the isthmus after *c*105, and perhaps right down to the Hadrianic period (Fig 16). There is no published evidence, but Broomholm is said to have produced material that would not be out of place in a Hadrianic context (Robertson 1975, 280). The same is true of Low Learchild, where Richmond believed on the basis of the pottery that the fort had been held down to the time of Hadrian's Wall. The

only other installation known on the Devil's Causeway, the fortlet at Longshaws, is unexcavated; other forts on this road must await discovery. On Dere Street so little work has been carried out upon the early phases of the sites that their fate in the period c105-c125 must be guess-work. There is no clear body of samian evidence from Milton; there have been suggestions of Hadrianic occupation (Robertson 1975, 280). The archaeological evidence may be supplemented by the suggestion of the activities of a *censitor Brittonum Anavionensum*, probably in Annandale, c112 (Rivet and Smith 1979, 249-50; Rivet 1982).

The more the likelihood of continuing occupation north of the isthmus in the immediately pre-Hadrianic period, the less compelling seems the need to search for a linear frontier upon the Tyne-Solway in these years; the Stanegate, rather than forming the most northerly extremity of Roman dispositions could conceivably, on present evidence, have simply been an important east-west road within an albeit much reduced zone of occupation.

2.4.3 Conclusion: a linear frontier system on the Stanegate?

The evidence as considered here provides no good reason, whether related to the circumstances of withdrawal towards the isthmus, or to the actual distribution of sites on the Stanegate itself, to view the forts on the isthmus at this time to be forming a *'limes'* (cf. Frere *et al.* 1987, 71) or formal linear frontier of any kind. The most convincing explanation of the road and its installations that emerges is of a carefully secured route through the Tyne and Irthing valleys, with communications to ports or supply-bases on east and west coasts; the whole forming an artery of communication within a zone of occupation which may well have continued to extend north of the Tyne-Solway isthmus. There is no overwhelming

circumstantial reason to believe in, or clear proof of, a frontier line on the isthmus before the reign of Hadrian.

Chapter 3

FLAVIAN AND TRAJANIC LINEAR FRONTIER DEVELOPMENT IN NORTHWEST EUROPE: COMPARATIVE ASPECTS

In this chapter detailed comparisons are made between some of the differing frontier developments of Flavian-Trajanic Britain, Germany and Raetia for which the evidence was described above. As we have seen, only certain frontiers possessed a truly linear character. Even where linear frontiers existed, they were instituted at different times, and developed at different rates. Once a greater understanding of the varied origins of the earliest frontier systems has been obtained, it is possible to appreciate better their intended purpose and actual function, and to discern what policy may have lain behind them.

3.1 The first artificial frontiers: Britain and the Taunus Wetterau

The very earliest artificially laid out frontier lines took the form of watchtower systems. At different points in time, although perhaps not at dates far apart, it was decided to mark out definitively, by means of a cordon of towers, strung along a cleared ride, track, or road, a frontier line, at the limit of the Roman military advance, in certain areas both in Britain and in Germany between the Rhine and Main.

Our survey of the development of these earliest cordons revealed two distinct phases in the application of the linear frontier idea:

1. The establishment of the Gask frontier in Scotland, whether dated to c80-81 or c86-92, undoubtedly represents a short-lived watchtower system of the Flavian period which may be compared to the Upper German examples. The system covered only part of the northern frontier. The equivalent moment occurred on the Taunus ridge of Upper Germany c90; the essential difference in the case of Germany is that once the frontier line began to be established, the process of its development would never be halted or reversed, as happened in Britain. In this earliest stage of development on the Upper German linear frontier, the watchtowers on the Taunus ridge and western Wetterau were flanked by open dispositions of forts in the Neuwieder basin and the north and eastern Wetterau, where watchtower systems had not yet been built.

2. The next stage of the development of the Rhine-Main frontier sees the extension of a watchtower system to close off the remaining open parts of the northern and eastern Wetterau, probably in the years c100-110.

In one important - and characteristically early - respect the arrangements of Flavian Scotland resemble those of Upper Germany c90-100, implying perhaps a chronological development of the idea of watchtower systems. In neither system did the watchtower component form the whole length of the frontier. In the case of the Gask, the southern terminal of the watchtower system has been thought to lie on river Forth (Hanson 1987, 153) or on the Teith (Maxwell 1989, 112-14). Whether or not the towers extended this far, the frontier between the watchtowers and the Clyde, on the west side of the Isthmus, perhaps consisted simply of a distribution of garrison forts interspersed with the formidable mosses which will have hindered movement between the Highlands and the Forth-Clyde isthmus. Similarly, on the German frontier, the earliest watchtowers occur in only a limited sector between the Lahn and somewhere in the north Wetterau. In a manner strikingly

reminiscent of the arrangements argued above (2.2.5) to date to c87-92 in Scotland, the watchtower system then gives way to an arc of garrison posts - Butzbach, probably Arnsburg, Echzell and a series of smaller installations linked by a road running down to the Main (cf Figs 1 and 14). Whatever purpose the original watchtowers in Britain and Germany were intended to serve, it was limited to specific sections of the frontiers. In contrast the secondary German towers of c100 onwards may be seen as deliberately closing a partially open system, so that the whole length of the frontier between the Lahn and the Main was covered.

It is clear that the whole land frontier was not closed off at once, but rather in stages, and that, as we shall see, areas south of the Main lagged behind in this respect. While the general extension of the system after c100 is taken here to represent a conscious policy, it could also be taken to suggest that the very presence of the Roman army was triggering changes in the agricultural strategies and tendencies to movement of local peoples. In other words the extended linear frontiers were a reaction to an instability engendered by the presence of the army itself. This idea is discussed below (6.3.1.3).

3.1.1 Differing intensities of border surveillance

From the beginning variations may be noted in the spacing of installations and density of garrisoning between certain sectors, which may cast light on the differing problems that they faced. In the Taunus no forts of full auxiliary size are known before the Hadrianic period. If troops were permanently based here as early as c90-100 (as opposed to being outposted from the road forts to the south), their largest installations were less than 1ha in size. In contrast both the Gask and parts of the Wetterau enjoyed the presence of pre-existing full-sized auxiliary forts. The general spacing and provision

of forts and fortlets, as well as watchtowers, is closely similar on the Gask and eastern Wetterau stretches.

The thinly garrisoned Taunus sector implies a very low intensity of military threat, but a potentially high risk of low grade infiltration: note the close spacing of the towers on the Taunus, which, although in part a product of topography, may compensate for the low numbers of troops involved. The very absence of nearby auxiliaries suggests that the patrolling garrison using the towers was intended to intervene directly to interfere with movement across the frontier. The Taunus ridge is thought to have been as afforested and intractable as today, and the landscape through which the frontier cut provided the classic hiding places for Rome's informal military opponents and the resistance fighters of a half occupied territory. With the very closely spaced towers, detached patrols could not be lost sight of, and overwhelmed, without nearby colleagues knowing. Soldiers would not have to cover more than c600m before attaining a defensible strong-point.

Assistance could have been sought by means of warning signals, but that there were no major garrisons which could be alerted shows that no large scale incursion was anticipated here. Nevertheless, the early application of a watchtower system to the Taunus ridge shows that the problem of infiltration through the afforested uplands must have been considered particularly acute.

In the second type of watchtower system, as in Flavian Scotland or the Wetterau, a higher intensity of threat may have been anticipated. Movement over the flat or rolling landscapes through which these frontiers ran would have been easier for large groups, whether of raiders or of moving populations. The zones immediately protected by the watchtower systems - Strathearn and the Fife peninsula in one case, the Wetterau in the other - were fertile and alluring objectives, no doubt for raiders and unwanted settlers alike. This was the more so as

in both cases these areas were easily obtained from upland areas which harboured warriors unconquered by Rome. The edge of the Scottish Highlands broods on the skyline north of the Gask, while the watchtowers of the northeastern Wetterau look towards the Vogelsberg. Not surprisingly, it is in these areas that we see an early and substantial provision of auxiliary garrisons pre-dating the installation of a watchtower cordon. The detachments in and patrolling between the watchtowers could still intervene directly against small scale raiders or unwelcome arrivals, but it is an indication that there was a greater pressure of some sort upon these frontiers (in contrast to the Taunus sector) that full auxiliary units were so readily available to move into action. Auxiliary units may have been based in such zones from the beginning because there were both a considerable settled population to control and a correspondingly high risk of attack - or subversive assistance - from outside the Roman occupied area.

The two types of border surveillance outlined could be simply categorised as one type for remote frontier land and a second for settled agricultural frontier land. In both cases, however, the army was reacting to a problem of frontier control peculiar to the non-riverine frontiers of Europe. In each case the patrolled line cut through pre-existing patterns of afforestation, native movement, or settlement. There was no natural frontier to follow, no sudden change from one side of the line to the other. In contrast to, say, desert frontiers, there was no way of predicting the likeliest directions from which infiltrators might appear; the Roman army had to cover all of the options. We may see the watchtower systems originating as a means of doing this by spreading out detachments of the army as thinly as possible along a well defined line, while keeping the small groups of men as safe as possible. But because of differences in the degree of infiltration encountered, this principle was applied in different ways, and at different times, from sector to sector

of the frontier, with some sectors enjoying a greater presence of auxiliary units than others.

3.1.2 The continuing separation of linear frontier troops and units engaged in subjugation and occupation

That frontier lines were seen in the first instance as a security device, whose operation was perceived as having little to do with the real military concerns of the army, is strongly suggested by the prolonged separation of the roles of frontier-manning and mainstream military occupation. Even when the cordon of towers between the Lahn and the Main had been completed, auxiliaries and their bases were not closely integrated into the watchtower system.

In the Germany of the 90s, as in Flavian Britain, the bulk of units was still not on a linear frontier at all, but spaced along a major penetration road into the Wetterau. Wiesbaden, Hofheim and Heddernheim may be compared to Corbridge, Newstead and Dalswinton. At the limit of Roman control a large fertile area such as the Wetterau was garrisoned with large forts, as the Neuwied basin soon would be, and as perhaps were the valleys of the Forth and Teith at the time of the Gask frontier. This policy of garrisoning populous areas and corridors of communication with concentrations of more than one auxiliary unit, or parts of several units, seems a survival of the older, fluid approach to frontier control which pre-dates the general cessation of military advance and the notion of linear cordons. The policy did not long survive the fossilization of dispositions. In Germany there was soon a rapid shift towards placing units on the linear frontier, although this happened much more quickly in some areas than others.

The general evacuation of units from the penetration roads of the hinterland, and their placing upon the linear frontier, was

a fairly rapid process north of the Main, where by the end of Trajan's reign, only Friedberg survived as a hinterland fort. This presents an obvious contrast to Britain, and may be an indication that the amenability of the native peoples of Upper Germany to Romanisation was greater than in Britain, and that the resistance of tribes in parts of northern Britain correspondingly more fierce. The same contrast will be noted even more graphically in the case of Raetia. In Upper Germany the ease with which *civitates*, apparently running right up to the frontier, replaced the abandoned forts, is notable (Baatz 1975, 53-57; Schönberger 1969, 164-65). If an equivalent process occurred in Britain it was over a much longer time-scale: the probable *civitas* of the Carvetii in the Eden Valley is not attested before the third century (Birley 1967, 11-13), and even then there is no reliable evidence that forts in the hinterland of Hadrian's Wall were abandoned.

The clear conclusion to be drawn from the preceding discussion is that, after the first frontier cordons had been introduced, in Britain and the Germanies military occupation still involved the imposition of garrisons upon peoples, where there were such settled peoples, and the basing of units for strategic movement against people from outside the province. In Germany, to a much greater extent than in Britain, the former policy was gradually run down in favour of placing troops on the border surveillance line. However the continuation in places of the older policy of placing garrisons among peoples and on communications routes shows that the frontier cordons were not in the first instance intended to symbolise or legally represent the edge of the Roman empire. They were a recognition that military advance had been indefinitely postponed in given sectors; but some time elapsed before the Romans felt able to apply them to all of their land frontiers, partly because active conquest or subjugation was still taking place in some areas.

On the Rhine-Main frontier of the first decade of the second century, a preclusive linear system was already being consolidated, when elsewhere linear arrangements remained unheard of (or, in the case of Scotland, had long been abandoned). This need not occasion surprise: this was a frontier of early origin (*c*90) and one whose development was, perhaps by chance, allowed to proceed unchecked. The most noticeable feature here is the giving up of the forts on the old Wetterau penetration road. In the Taunus, the process of actually situating more garrisons on the frontier line becomes apparent. However, the big garrisons of the Wetterau penetration road did not move forward to the Taunus ridge; as might be expected from the foregoing, they were transferred to the areas of agriculture and population concentrated in the Wetterau to the east. The Taunus always remained relatively thinly garrisoned: the Saalburg was now part of a series of small (less than 1ha) forts spaced as follows:

Marienfels

30km

Zugmantel

26km

Saalburg

7km

Kapersburg

These are the forts designated *numeruskastelle* by German scholars, on the basis of size and, in the case of Kapersburg, a known *numerus* as garrison at a later date. Their wide spacing in the Taunus is a conspicuous feature, and one that endured on this sector of the frontier. If these units were alone responsible for the approximately 150 watchtowers in *Strecken* 2, 3 and 4 in existence by this date, each will evidently have had to have permanently outposted more than one century to the towers. At a ratio of six men per tower, each would have had to have provided some 120 men, which will have considerably depleted the sort of unit (generally estimated at

about 200) which will have been able to fit in such a small fort.

The alternative is that more sites of this period on the frontier await discovery. The early sites at Kemel and Alteburg-Heftrich do not seem to have been any larger than fortlet-size. An early fort of *c*0.60ha at Feldberg, filling the gap between Zugmantel and the Saalburg, would be an attractive possibility, but no evidence has been discovered. While all Flavian-Trajanic 'systems' must be treated with caution, as only partially known arrangements, it is notable that even in the age of stone fort building whose sites are much more readily detectable, the provision of stations along the Taunus ridge seems to have been very sparse.

Here is an indication that the units on the Taunus ridge were frontier police specialists, raised especially for the task and devoting much of their strength to it, in contrast to the regular auxiliary units, in which, as Trajan wrote to the Younger Pliny, at precisely this time (*Ep.* 10, 20), as few soldiers as possible should be called away from active service. This was surely not a fortified frontier line, but rather an economic use of manpower to police predictable points of crossing; the highly irregular spacing of the sites shows that movement or infiltration could be anticipated at particular points where passage was traditional or difficult to detect in the upland landscape. All of this reinforces the impression that major garrisons were placed where people were. The thinly populated, afforested Taunus did not warrant intensive garrisoning, but being a zone where unauthorised movement might well go unobserved, it required a system of policing.

In the Wetterau, on the other hand, the auxiliary forts did not form an integral part of the linear frontier system. Two roles, occupation of territory, and patrol of a frontier line, were evidently still seen as separate. It is instructive to compare the first scheme for Hadrian's Wall. The auxiliary

forts of the Wetterau lay 1-2km away from the patrolled frontier line. On the line itself the troops were perhaps based in fortlets (probably holding detachments from the auxiliary forts) such as Butzbach, which lay right on the line; there may also have been troops on the line in a numerus-sized group at Inheiden (0.60ha), unless the pottery that gives this unexcavated site its early date really derives from an undiscovered fortlet.

Even by c110, when patrol track and watchtowers were laid out for the first time between Echzell and the Main, in two dead straight lengths of 18 and 16km respectively, fortlets were still largely used to house troops on the patrolled line, with manpower being supplied from garrisons to the rear.

3.2 The possible functions of watchtower cordons

Having achieved a clearer view of the partial development of the early linear frontiers, and their variation from area to area, it becomes possible to see which suggested functions of the watchtower systems are more probable than others.

3.2.1 Provincial Boundaries

The partial use of watchtower systems along lengths of frontiers, at least in the earliest stages, indicates that they represent a military response to particular exigencies rather than an attempt to demarcate the boundary of a province in a political or symbolic fashion. For Tacitus, the *terminus* in Britain was conceived of as lying between Forth and Clyde (*Agricola* 23), precisely where it appears that at this time military installations did not form a linear system of cordon type. The frontier of the province was no less clearly defined by any natural feature between Forth and Tay, the sector to which the cordon of towers was restricted; therefore they

probably served some other function there. As an open disposition of garrisons existed in the eastern Wetterau at the same time as the earliest Taunus towers were in operation, the towers cannot originally have been intended to demarcate the provincial boundary of Upper Germany.

This does not necessarily mean that watchtower systems did not, in time, become associated with the notional land boundary, or *limes* of a province (3.7 below). The important point is that this cannot have been the primary or practical function of this most distinctive of military arrangements. If indeed there was a link between the concept of 'watchtower system' and 'provincial land boundary', it is likely to have arisen at the time, c110, when the land frontier of Upper Germany had become completely delineated by artificial systems.

3.2.2 Defensive lines

It is difficult to see the earliest system of watchtowers in the Taunus serving as a defensive line against concerted attack. Not only did it lack substantial garrisons (cf the remarks by Dobson (1986, 17) about the first scheme for Hadrian's Wall), but vulnerable and fertile areas to either side, the Neuwied basin and the Wetterau, were left unprotected by such a cordon of towers. Perhaps the area immediately north of the Taunus was a recognised source of raids into Roman occupied territory; perhaps observation of infiltration was more difficult in the afforested upland zone. At any rate it is likely that some local and practical consideration decided the first application of watchtowers to the German frontier.

With the Gask frontier, the matter is more complicated, for the watchtowers here do in fact seal off a self-contained area (Strathearn and, beyond the Ochils, the Fife peninsula, home perhaps of the pro-Roman Venicones) which was not screened by impassable mosses as was the frontier to the west. In this

connection, it is significant that the distribution of installations on the Gask is similar to that on the German stretches of *c*100 onwards, when indeed all remaining gaps in the Upper German frontier were being closed. Does this kind of watchtower system represent a more defensive type than the anti-infiltration system seen in the more remote Taunus?

Static defence would be difficult using such a system because such an open disposition of towers - with intervals of over 1km - as appears on the Gask and eastern Wetterau cannot have been held, as a static line of defence, against even small raiding forces, who could have passed between the towers without interruption. However, the point is that the usual intervisibility of the towers would prevent intruders from passing through undetected, at least in daylight or in a force of any considerable size. Obviously, the inhabitants of watchtowers, having observed unwelcome movement, would not always themselves be in a position to intervene directly; which leads on to the controversial question of signalling as a role for these watchtower systems.

3.2.3 Signalling systems

The use of such systems of towers for signalling has long been assumed, although it has become conventional to decry the notion of signals being sent along the lines of frontier towers; it has rightly been observed that the systems as they stand would render lateral signalling over a long distance a very time consuming and cumbersome process given the very close spacing of the towers. In combination with this Donaldson (1985) has shown the impracticability of complex signal sending. If signals were not sent from tower to tower, were they sent back, to some rearward dispositions? Woolliscroft and Hoffmann (1991) have shown how at times the towers of the northern and eastern Wetterau could have been used for direct signalling of early warnings to forts, which were mostly to the

rear in the former case, while signalling along the line would be necessary in the latter. They stress the lack of a forward outlook for many of the towers. However, their interpretation of the system as a signalling device does not explain all of its characteristics. The close spacing of towers in *Strecke* 5, where it is admitted that signals would have to be transmitted along the line (1991, 543) is excessive unless observation - with the possibility of direct intervention - is also seen as a major role. In the original Taunus arrangement, there would have been few garrison sites for the characteristic watchtower cordon to signal to, so it must have had some other purpose even if signalling formed one of its roles. Away from the sectors studied by Woolliscroft and Hoffmann, the Gask frontier provides a clear example of a watchtower cordon possessing no rearward installations to which it could send signals.

These are difficult conclusions to arrive at, given the material evidence of a later date from at least one German watchtower which would strongly suggest that sound signals (if not visual ones) were sent. However, the close spacing of the watchtowers only remains a problem if we see signalling as being their only function. What we have to remember is that the towers probably served several roles, and that they had to form an effective means of observation and surveillance in order to discover any intrusion worth reporting. Even if lateral signalling were intended, unless the towers were closely spaced they would not be able to detect unauthorised movement. We are looking at a surveillance system within which a warning signal could be relayed to the nearest body of troops of adequate size to move to deal with the situation. Such a signal need not be complicated; as Southern (1990) has shown, it need only warn a unit to be on the alert and ready to move when more detailed intelligence about the presence of raiders has arrived. Nor would the distance over which the warning signal need to be transmitted often be very long. There is comparative evidence, ranging from the documents of the Han administration of China to sixteenth century plans for the

Border March of Northumberland, to show that it is possible for linear frontiers to employ this kind of intruder-alert signalling.

The individual signal or early warning tower connected to a particular fort, often providing an 'eye' in a blind spot, is a well-known type with close archaeological affinities to the watchtower of frontier cordon type. The Flavian fort of Fendoch in Scotland (not part of a linear frontier system, but one of the so-called 'glen-blocking' forts contemporary with the legionary base at Inchtuthil) was provided with a tower looking into the Sma' Glen; later, Bewcastle, an outpost of Hadrian's Wall, was provided with two 'eyes' or signal-stations, Robin Hood's Butt and Barron's Pike (Topping 1987). Despite their basic archaeological similarity, the frontier watchtowers deserve a separate classification to the individual signal towers, for the frontier towers had other roles which explain their distinctive cordon arrangement. The principal of these was that they had to be sufficiently close together to observe any movement across the line. Pennant (1776, 90) first perspicaciously remarked on this function with reference to the Gask towers: '...between this [tower] and Innerpaffery are two other similar, placed as near that everything that stirred beneath, or at a certain distance around, could be seen.'

3.2.4 A Border Surveillance System

It has been established that in certain circumstances static groups of soldiers may have signalled from tower to tower to alert larger forces nearby of an incursion. However, to see this as the only way in which the towers functioned would be to see the whole frontier operating in a formal and mechanical way. If the various operations which were no doubt regularly carried on outside the towers are remembered, it becomes

possible to see another way in which they might have functioned.

It is highly likely that these earliest frontiers were patrolled lines as much as a series of static observation posts. The track and cleared way connecting the individual towers (a full scale road in the case of the Gask) may have been constantly patrolled. A (legionary) duty roster of roughly contemporary date from Egypt juxtaposes the task of manning towers with that of patrolling roads (Watson 1969, 72-3 and Appendix B). In exposed tracts such as the earliest frontier lines of northwest Europe, small patrols or detachments of soldiers would not wish to travel very far without knowing of a refuge in case of surprise attack, and so the towers may have served something of the same purpose as did fortlets and road stations along true military roads.

Secondly, the soldiers in the individual towers may have had a greater scope to interfere directly with the movements of those approaching the frontier than is usually thought. Obviously against a large scale incursion small detachments of soldiers in the towers would have been impotent. However, small detachments of men, operating flexibly between the towers, would have been able to exert a curb upon large bodies of heavily laden refugees or illegal immigrants attempting to cross the frontier, or upon individuals, small groups of infiltrators or guerilla fighters either crossing the frontier or attacking a watchtower. The throwing stones and projectiles found in the towers bear witness to this just as a sound instrument speaks of the functions of early warning and intercommunication (4.7S4 below).

In conclusion, rather than representing political or fiscal lines, or mechanistic signalling systems, the earliest series of installations were responses to particular problems of border surveillance which varied from area to area. They were a improvised military response to a difficult set of

situations. As Petrikovits (1967) and Baatz (1976, 31-35) have shown, there was a tradition of military building, in city defences and linear siege works, running back to the Hellenistic period, from which the idea of watchtower cordons, as well as the later continuous barriers, could easily have been drawn.

3.3 The significance of the watchtower cordons: a demarcation of the border and an acknowledgement of military halt

An obvious remaining question concerns the idea behind the drawing up of such obviously permanent linear systems of border surveillance. How did the actual lines come to be chosen, and why? Several opinions have been advanced, ranging from J C Mann's famous proposition (1974) that the frontiers of the empire congealed in default of effective military action, to the belief of E N Luttwak (1976) that the frontier lines were chosen to form a rational system of military defence which operated as a coherent whole. Closely allied to the former argument is a view which has become deeply entrenched in Romano-British military historiography, namely that the faltering of advance had little to do with any local circumstances, perhaps least of all the resistance of indigenous peoples.

More recently B Isaac (1990, 416-17) has concluded: 'The choice of military frontier lines was hardly ever dictated by the desire to establish rational systems of defence. If they were chosen rationally at all, they were meant to afford good communications and logistics. But often they were simply the frozen forward lines of advance that could be held following military campaigns'. Isaac writes (*ibid.*, 389): '...Movements backward and forward appear to be a function of the ambition of the commander and what could be held in practice'.

Both of these views carry the implication that an artificial linear frontier system came about as a result of the most chance circumstances, and that similar circumstances might see the abandonment or movement of a system of installations.

Chance - in the form of the emergency on the Danube of c86-92 - almost certainly provided the immediate impetus to the construction of watchtower systems in Britain and Upper Germany. It is tempting to wonder whether the earlier of our two phases of development, where the watchtowers in neither province enclosed the whole length of the land frontier, corresponds to a period before the halt was officially considered permanent. The sort of fluidity envisaged by Isaac could well still have had a place here. However, our analysis of the origins of the Upper German frontier has also shown how rapidly - in no more than 20 years - the move took place towards a general closing off of the entire land frontier with watchtower systems. Where this happened, there was rarely any further advance, nor did the artificial frontiers usually get moved back. If such extended watchtower systems were decided upon at a low level, and not from the first officially recognised as permanent, we ought to expect to find abandoned sectors and superseded lines at an early date. There are changes in watchtower alignments in Upper Germany, and there is the famous change of line taken by the stone wall which replaced the Turf Wall of Hadrian in Britain. But these must be seen as strictly local adjustments. On the contrary, it is remarkable how permanent, in the broad sense, once chosen, watchtower lines remained (The apparent exception of the *Vorverlegung* of the mid-second century, in which land to the east of the Odenwald and the Neckar was enclosed, is dicussed 6.4.1 below).

The abandonment of the Gask in Britain is the only example of a withdrawal from a watchtower system, and it may be explained by the special circumstances of additional troop transfers from Britain at a time of emergency. Significantly, the Gask was

not succeeded by another linear frontier until the time of Hadrian. In the years c92-c122 there is no evidence that linear frontier systems of any kind sprang up anywhere in Britain. The possible reasons for this are discussed below (3.4.1). In general, then, the rapidity of the move to a general watchtower frontier in Upper Germany, combined with the contemporary absence of any such tendency in Britain, may lead us to suspect that the delineation of the frontier in this way was a decision taken at high official level.

This finality of frontier lines suggests that there was more conscious policy behind them than is sometimes supposed. It also suggests that they may have been more influenced by local considerations than the advocates of the 'chance outside factor' would allow: frontier lines were generally located thoughtfully enough for them to remain permanently useful. The archaeological evidence shows that such watchtower building schemes were not considered lightly. Once established, and with the exception of the Flavian frontier in Scotland, these arrangements almost always formed the basis of the provincial border surveillance system until the late-Roman period. At the very least, it is suggested, the decision to build an artificially demarcated frontier represents a recognition of the fact that further resources or a new policy initiative were unlikely to be directed at that particular sector of frontier for the foreseeable future. The area which the available garrisons could effectively occupy and police was not infinite, and once it was considered to have reached its maximum or desirable extent, and only then, an artificial system of demarcation and surveillance was constructed.

This is not to argue that the frontier lines were chosen as part of an overall grand strategy, as Luttwak (1976) has suggested; the partial and uneven nature of their development that has been traced in northwest Europe should disprove that. But it is reasonable to suggest that the army on the ground, having been far-sighted enough to accept that further advance

was almost certainly not going to happen, would arrange the frontier lines in such a way that they tied together in a pattern that was effective for communications and supply, and Isaac (1990, 417) does allow for this.

However irrationally aggressive the Romans were capable of being, it is hard to escape the conclusion that the generality of military dispositions on the great frontiers was coming to be considered unlikely to be changed. Individual emperors might embark on military adventures, and might well wish, like Marcus with the Marcomanni and Sarmatians, to forge new provinces beyond the frontiers. And there may truly, as Isaac states, have been no rational search for defensible boundaries. For all this, after the Danubian crisis of c86-92, frontiers generally remained where they were, and may be seen as rational choices in their own terms. Those terms are not to do with wars of conquest: they are concerned primarily with the security of what was already held, and what continued to be held. This in spite of aggressive adventures, which, as Isaac himself is keen to remind us, were directed at peoples, not territory. Far from being unstoppable, the Roman army found it could advance no further than the lines up to which it was possible, with available manpower, to protect itself and not to succumb to disastrous revolt. Of course the army did not *at first* fear a strategic attack, and the artificial frontiers would be little use against one. Rather they were a system of security for an army of occupation (and those locals who accepted the occupation) in a remote and increasingly hostile frontier zone. Individual emperors might embark upon wars of conquest beyond the frontiers, but unless vast numbers of troops were made permanently available for the new areas, the limit of practical occupation would remain where it had been before. Such zones of practical occupation tended to stay roughly the same, irrespective of wishes and attempts of individual emperors to change them. The locations of the frontier systems have much more than antiquarian importance,

because they show us where the limits of these zones were perceived to be by those responsible for their security.

But what of Britain, with its frontier that moved backward and forward? Does this not show, as Isaac (1990, 389) claims, that mere fluctuations of military ambition determined the siting of the frontiers? We shall return to this point in section 6.4, but here it may be said that the oscillation of the frontier may be illusory. What the present study has emphasised is the crucial difference between artificial linear frontier systems, and mere forward dispositions of military sites. There are actually very few discernible moments in Britain when the decision was taken to build a linear frontier, i.e. to accept the permanence of the situation. One was in Flavian Scotland. That frontier was abandoned because troops were taken to the continent; the land running all the way to the Gask frontier could not be practically occupied. A revised frontier was not now built further south; whatever the fluctuations of military fortune, it was not until a generation later that, with a new policy decision, an artificial frontier, Hadrian's Wall, was built on the lower isthmus. It remained the frontier of the province until the end of Roman Britain, although an attempt was made in the Antonine period, ultimately unsuccessfully, to restore a linear frontier to the northern isthmus. If seen in terms of linear systems, the frontiers of Britain were not so liable to chance movement. Once the complete conquest of Britain was frustrated, a rational line for a linear frontier became apparent. The holding of this line, and a later attempt to re-establish it, were frustrated by persistent crises in other theatres of war, leading to the persistent occupation of Hadrian's Wall. Rather than a movement backwards and forwards, this represents a persistent falling short of a consistent aim. There is nothing necessarily indecisive or irrational about the frontier line decisions in Britain.

To conclude: rather than being merely 'the frozen forward lines of advance that could be held following military campaigns'

(Isaac 1990, 417), frontier lines of the artificial sort considered here represented a conscious realization that there was most unlikely to be any further advance, or withdrawal; the army, perhaps with dwindling numbers, knew that it was to mark time for the foreseeable future. The moment for that decision which best fits the archaeological dating evidence for the origin of the watchtower frontier in Upper Germany is the prolonged emergency on the Danube that drained northwestern Europe of troops after *c*86. The linear systems of border surveillance which resulted were the product of an army unable to extend further the occupied zone, and faced with practical problems of security on the ground. What may have begun as a temporary security expedient on the part of the army was applied, within no more than 20 years, to the entire land frontier of Upper Germany.

3.4 The Failure of comparative linear frontiers to develop in Britain

A clear characteristic of the frontier developments of these years, then, is that different provinces, and areas within provinces, were treated in strikingly different ways. It is probably this fact which has deterred efforts to compare directly and in detail the various, apparently randomly different frontier approaches of this period. What is to be gained by comparing the open British 'Newstead-Dalswinton axis' of *c*90-*c*105 to the linear watchtower and fort system prevailing in the Taunus-Wetterau by the end of this period? Yet here it is argued throughout that what is really being seen is the development of frontiers at relatively different rates: it is apparent that the move to a formally demarcated frontier line was not generally made, but only at specific times (when further movement of military dispositions was not anticipated) and in specific areas. The various points of origin of linear frontier systems, and the different speeds at which they originated and developed, in fact provide vital clues to the

operations being conducted by the army in these places, the varying problems that the Romans were faced with, and their success in solving them.

3.4.1 A continuing fluidity on the British northern frontier

In Britain, after the inchoate frontier of Flavian Scotland, we must wait until the building of Hadrian's Wall to see another formal linear frontier. The evidence examined in section 2.4 indicated that with the Stanegate we are not dealing with a formal linear frontier of the sort that is clearly recognisable by its standard types and arrangements of installations. Before the return to the Tyne-Solway, the frontier in Britain, in Collingwood's phrase (1927, 17), 'petered out' rather than being marked by a definite line. The contrast is vital; if we are to establish what linear frontiers were for, we must attempt to understand why one may have been omitted in Britain at a time of intense frontier development in Germany. As argued above (3.3), formal frontier building indicates, in the first instance, a policy awareness that further movement was postponed for some considerable time; the extension of such building to an entire land frontier indicates that the situation had been accepted as permanent. Such a decision was evidently not arrived at in Britain between *c*90 and *c*105, and perhaps not until *c*120. As we see from the Newstead-Dalswinton dispositions, the situation remained fluid.

These considerations suggest one possible explanation: that the dispositions between the Tyne and the Tweed of *c*90-*c*120 were not at the time considered to be permanent, even if they lasted for over a quarter of a century. In other words it may have been felt, or even explicitly suggested, that sooner or later the frontier would have to fall back even further. A reverse of this proposition would be that further advance was considered likely. Connected to this is imperial attitude; Trajan may have refused for some reason to countenance the

fixing of a frontier line in Britain; he may have wished to have been seen to pursue the war in Britain, even in a token manner. There is no other example in this period anywhere in the empire of the Romans withdrawing from an artificial watchtower frontier, as they had from the Gask: they may not have been willing to accept this situation in Britain and philosophically build another frontier.

A second possible explanation might be that the diplomatic situation in Britain may have been different from that in Germany. At some date after the close of the Chattan war, the Rhine-Main frontier may be said to have begun to crystalise at the extent of the natural area of Roman control. Even with unlimited troops, the Romans could not have increased the area of prosperous, agricultural land under their control without creating an even more irrational salient than the Wetterau; they were clearly not willing to undertake conquest of the Vogelsberg and the upland preserves of the Chatti north and east of the Wetterau and the Giessen basin. In Britain, however, the Gask frontier, on the edge of the highlands, probably demarcated the end of the natural Roman constituency, containing areas whose people were at least in part ready to enter into relations with Rome. The distribution of native settlements has been used to argue for a 'natural and political boundary' on the Tay (Maxwell 1989, 124-6). This natural line was echoed in the Antonine period by the northern wall and its outposts; again in the Severan period Carpow hints at Roman interests as far north as the Earn or the Tay. The giving up of Roman forts running up to this recurrently used line is now commonly thought of as being a product of troop withdrawals, and does not necessarily imply the giving up of all Roman control. It may be that diplomatic control and influence substituted for formal frontier control of the cordon type, and that it was not considered desirable to isolate friendly peoples. A less charitable way of reading the situation would be to suggest that bitter, inconclusive warfare was being waged in southern Scotland; but in this case the effect would be the

same. No frontier line could be formed in such circumstances, for frontier lines were means of border surveillance, not means of fighting wars or protecting Roman forts against attack: as we have seen, the earliest linear systems lay away from troop concentrations. The likeliest explanation is that given insufficient troops to occupy the whole area, the Romans chose to exert their direct power upon certain parts.

This may go some way to explaining why the non-linear disposition of forts takes the form that it does. As was suggested above (2.3), the forts of the period *c*90-*c*105 surround the southern Scottish hills, looking into them from valleys and coastal plains. The Romans would have no desire to relinquish control over the fertile zones such as those where a *censitor* might carry out his surveys, and taxes be levied. In these circumstances it would have been a clumsy solution to the problem to draw an arbitrary artificial frontier across the Scottish lowlands, excluding areas amenable to Romanisation as well as upland areas; yet there were insufficient troops to occupy the whole terrain between Forth-Clyde and Tyne-Solway. The known disposition of sites in this period suggests that the Romans hit upon the solution of occupying the fertile areas and leaving the upland interior unoccupied but carefully watched from the surrounding stations. A comparable expedient was employed in the occupation of Wales. This explains why Castlecary and Loudon Hill may have been occupied at this time: maritime routes were as important as communications across land, and outlying forts surrounding the northern part of the Lowlands could have been supplied by sea.

These may all be hypotheses, but in the long run the explanation of the failure of the British frontier in these years to adopt a linear form must be sought in the particular relationship that Rome shared with local peoples. Uncertainty brought about by troop withdrawals cannot alone explain the circumstance, for the army in Germany, where the watchtower frontiers steadily evolved, was almost certainly subject to

similar depredations. Rather, the Romans wished to continue to treat with certain peoples north of the Tyne-Solway isthmus, and had to do so without going to the expense of garrisoning the whole lowland zone.

3.4.2 The Stanegate system and its parallels

A frontier of possibly linear character - the Stanegate arrangement - is commonly suspected in Britain after *c*105, and is conventionally linked with further troop withdrawals from southern Scotland. On this hinges much: are we right to compare the 'late' Stanegate (*c*105-*c*120) to dispositions on linear frontiers between Rhine and Main? Or was the British frontier still 'open', merely a garrisoned road with no delineation significance and security maintained by outposts and diplomacy to the north?

Certainly, in recent years doubts about the 'Stanegate system' have grown, and from the evidence discussed above (2.4) it was concluded that the Stanegate has not produced the familiar paraphernalia of a patrolled watchtower system. So there have been expectations of a linear frontier, but it has never come to light.

If the forts along the Stanegate did form a linear disposition, along a major road running along the edge of Roman occupied territory, then it is no surprise that scholars have attempted to see in it a defended linear frontier. But it was suggested above (2.4.2) that the evidence for the abandonment of all sites north of the Stanegate *c*105 is unsatisfactory. On the contrary, there are indications that at least some of these sites may have continued to be held. If the Stanegate was, in fact, simply an (albeit important) route within Roman occupied territory, it is possible to make better sense of the stations that were placed along it, and to explain why the system of installations failed to develop the characteristics of a

watchtower frontier. Even without forts to the north the Stanegate could simply have functioned as a military road, as did a closely similar road of the 90s in Upper Germany, which predated the watchtower system between Ober Florstadt and the Main.

Here, the frontier running south from the group of big forts which probably existed in the 90s in the northern Wetterau - Butzbach, Arnsburg and Echzell - consisted of a line of somewhat smaller installations running down from Echzell to Hanau-Salisberg on the Main. There is no evidence for a watchtower system having existed on this line; when the towers and patrol track came to be laid out in this sector (*c*100-110) it was 3-10km further to the east. 10km south of Echzell was Ober-Florstadt, possibly a fortlet site at this time; 10km south of that Heldenbergen, a small fort of 0.80ha; and 12km south of that Salisberg, probably a cohort fort (see 1.2 above for dating evidence). The sites were apparently linked by a road (ORLA 3-5 Map 7) and the forts lie at river crossings. The various sizes of these forts recall those of the Stanegate in Britain after *c*105, when smaller installations had narrowed the gaps between forts spaced at 20km intervals.

Although there is a lack of information about some of the sites, the spacing on the eastern Wetterau road and the river Main *c*90-100 was as follows:

Echzell	5.2ha	
		10km
Ober-Florstadt	fortlet	
		10km
Heldenbergen	0.8ha	
		12km
Hanau-Salisberg	fort?	
		8km
Hainstadt	0.9ha	
		4km
Seligenstadt	?	
		9km
Stockstadt	0.3ha	
		9km
Niedernberg	?	
		9km
Obernburg	?	
		5km
Worth	small fort?	

The large fort at Echzell (5.2ha) recalls the very large early forts of *c*3ha known at Vindolanda and Nether Denton, and suspected at Carvoran, although these may have been much reduced in size after *c*105. With a fortlet after 10km, and a small fort at Heldenbergen after another 10km, not much smaller than, say, Brampton Old Church, and finally probably a fort at Hanau-Salisberg, a sequence of fort types emerges which is repeated on the Stanegate with Nether Denton, Boothby, Brampton Old Church and Carlisle, although the spacing is much closer in the British example. Although there is less information about the sites at this period, it seems that on the Main south of Salisberg there may also have been a mixture of forts and smaller installations, fairly closely spaced.

The similarities between these two particular stretches of frontier may provide clues to their purpose, and may help to explain their obvious differences from those frontiers marked by watchtower systems. That the German road and the full Stanegate arrangement did not exist at the same time is not a problem: both predated the decision to draw up a formal artificial frontier. This simply happened much later in Britain than in Germany north of the Main. Both the Stanegate and Eastern Wetterau systems centred on a road. These were not penetration roads, but roads which the Romans would use to move right or left among their own dispositions; between Corbridge and Carlisle in one case, and between a major port and river crossing on the Main and troop concentrations in the northern Wetterau in the other. Unlike the penetration road in Scotland running north of Camelon, neither of these was a far flung appendage, protecting a projecting salient of Roman controlled territory, and using watchtowers so that troops could be spread along it as thinly as possible. Rather these were roads that remained in use as arterial traffic routes.

Besides already being a garrisoned road, the Stanegate formed, at least in its central part, an abnormally well garrisoned road. Already c90-c105 the Stanegate was characterised by a fairly closely spaced (c20km) series of forts, comparable in spacing to the series of Vespasianic sites along the Wetterau penetration road. It is clear, however, that at this time there were Roman forts running up to the Tweed. The road was obviously not now a fortified frontier, and the explanation for the generous garrisoning probably lies in the agricultural richness of the Tyne valley and the fact that on the major road traffic would need shelter and protection. Such protection on the road was evidently increased in the early second century with the addition of the fortlets and the fort at Old Church Brampton. It is most convincing to see the extra forts and fortlets added in the Trajanic period as being road stations for extra security on an increasingly exposed main route. It was argued above (2.4) that each of the added installations may

have had a specific purpose connected with the security of the road. While it is true that it cannot be known that guarding the river crossings was one of the functions of such forts as Haltwhistle Burn and Throp, as a hypothesis it is much easier to support than the notion that the sites controlled north-south movement, which is not supported by their positioning. All of the sites, large and small, on the road north of the Main to which we have compared the Stanegate, lie on river crossings. Conversely, a road is considered below (3.5) which the Romans used to penetrate the frontier area of Raetia. On this road major forts guarded river crossings: or so we assume from their position. Here some forts were built to monitor north-south movement. But significantly, they were placed well forward of the road, where that movement could be best supervised; just as happened in the case of the Stanegate, when Hadrian's Wall was built.

Considerations like these applied to few of the sectors of the Rhine-Main frontier where watchtower systems developed.

Military communications were always more vulnerable in Britain: the northernmost major route between the two halves of the occupying army ran through an exposed upland zone. This may well explain the close spacing of forts and fortlets along the central Stanegate.

As a road, the Stanegate did not acquire a watchtower system. Yet the Stanegate has its known towers, which served not as a continuous chain, but rather had individual purposes, just like the isolated towers with specific roles related to particular forts (eg the 'eyes' of Fendoch and Bewcastle: 3.2.3 above), or known along roads and on the river and desert frontiers considered in Chapter 7.

Thus it is not necessary to see the Stanegate as a frontier at all: especially so in the light of the possibility of military and diplomatic control north of the isthmus continuing after the traditional withdrawal date of c105. It is possible, of

course, that control over the lowlands did come to an end later than this but before the reign of Hadrian. Breeze (1982, 66-67) has suggested that the withdrawal of the *IX* legion and other troops may have fallen at the time of The Parthian war, c114. This may or may not have precipitated the building of additional installations on the Stanegate; but the fortlets could still be road stations added at any time, and the Solway installations could still be early Hadrianic. Even after c114 there could still have been forts north of the Stanegate.

Even if all forts north of the Stanegate were abandoned before the Hadrianic period, it might be a mistake to treat the road as a frontier. Although watchtowers should have been built along the Stanegate if it had been known that no Roman advance beyond the isthmus was going to take place, it is historically deterministic to seek a linear frontier on the Stanegate in these years, for we only know with hindsight that the withdrawal from southern Scotland would not be reversed. The contrasted archaeological evidence from Britain and Germany, then, rather than presenting two randomly different systems, in fact reveals contrasting Roman assessments of the conditions of two frontiers. Between Rhine and Main it had been decided by the opening years of the second century - perhaps quite explicitly - that there would be no further advance. The gradual occupation of the area between Rhine and Main was perceived to have reached a rational conclusion. The introduction of watchtowers was delayed only slightly in the eastern Wetterau by the pre-existence of a garrisoned road. In Britain no such early decision was reached. This was the neglected province, Roman occupation up to a preferred line - at least the Forth-Clyde - being eaten away by troop withdrawals. The Stanegate perhaps shows us that it was believed, perhaps up to late in Trajan's reign, that the situation might be restored. What it may also be telling us is that the forts to the north had not all been given up in c105, or even perhaps by c115.

The evidence does not really suggest that the Stanegate 'congealed' into a frontier. It did not have the opportunity to evolve into a linear frontier system. The decision that what had long been a main road should become a frontier zone came suddenly and late. And then the potential development of an artificial frontier along the Stanegate was anticipated by the decision to build a definitive frontier - Hadrian's Wall - on a slightly different line.

3.5 Differences between Britain, Germany north of the Main, and Upper Germany south of the Main and Raetia

The linear frontier which developed in the Odenwald forms a link between quite different frontier developments. To the north we have seen the gradual development of an artificial frontier between Rhine and Main, stemming from an early appraisal of a static situation, and with its general outline fixed at an early stage. South of the Odenwald, however, in the area of the Neckar, and in the province of Raetia, there prevailed a situation much more reminiscent of that in Britain between *c*90 and *c*105. In the militarily occupied frontier-land between Upper Rhine and Danube, advance was evidently not seen as concluded. As argued throughout, it is the absence of such a decisive appraisal at an early stage which accounts for the absence of artificial linear frontier systems at the same time as they were appearing north of the river Neckar.

The Romans moved late into the Odenwald itself, in antiquity a remote and unpopulated zone. As in the connecting of the northern Wetterau and the Main, here at first sight it was the neatness of filling a gap, and connecting up two established series of installations - in this case the Main and the Neckar - which compelled the army into frontier building action in the Odenwald. Again the question arises: was there a change of circumstances which led to a greater need to block off gaps in the delineated frontiers, even if those gaps lay in remote and

inaccessible zones? The suggestion is considered below (6.3.1.3) that the permanent presence of the army of occupation may have had sufficient economic impact upon the local population to trigger increases in the amount of unpredictable population movement, to the detriment of settled agriculture. It has often been suggested that infiltration would be the main concern in this sector, for the wooded Odenwald neither supported a local population requiring supervision, nor was vulnerable to invasion (Baatz 1975, 153).

Whatever the real reason, the Odenwald was incorporated into the frontier system by *c*110. Through the wooded heights of the northern Odenwald, and the rolling country of the southern part, there was no natural obstacle or line of delineation, and, as was invariably the case when a definitive halt was decided upon in such circumstances, a cordon of watchtowers was built. As in the case of the earlier Taunus frontier, which was seen as a substitute for the surveillance provided by large garrisons, which the Romans did not wish to commit to so unpopulated an area, so in the northern Odenwald the army was certainly off the beaten track. From the start it was not considered worthwhile to garrison full-sized auxiliary units there, and the famous series of small forts, filled by lower grade *numeri*, was provided instead.

In the more open, gently rolling landscape (capable of holding population) of the southern Odenwald, two full-sized auxiliary forts were supplied, with a much wider spacing (15km) than that of the *numerus* forts in the rough country to the north (average spacing 5.50km). The provision of forts in the northern Odenwald was therefore much denser than that on the similarly remote Taunus. In addition, the southern Odenwald line of patrol track and watchtowers was surveyed in a dead straight line between Schlossau and the Neckar, arbitrarily cutting through the countryside and needing to take no account of local topography. This, of course, would hardly have been possible in the wooded heights of the northern Odenwald, and there it is

possible to see how the patrolled line has followed a negotiable route, winding through the heights and still being followed for the most part by modern roads. The different behaviour of the two parts of the Odenwald frontier presents an interesting example of a general rule which applies to the frontier lines being compared: the earliest frontiers followed topographic lines. Secondary additions to the frontier circuit also followed topographic features where necessary; dead straight surveyed alignments are always secondary, joining up pre-existing dispositions. A further observation of interest is that the watchtowers in the northern Odenwald are more widely spaced than those in the more low lying southern sector. The wider spacing of the towers may reflect the fact that the *numeri* were available for full-time patrolling. This may be a situation where a close concentration of other types of installation - in this case *numerus* forts spaced at 5.50km - rendered fewer watchtowers necessary. Unlike the *numeri*, who perhaps specialised in frontier police work to the exclusion of nearly everything else, the auxiliary units to the south would have had a wider range of duties, not least of which would have been the supervision of a local population. The smaller detachments of men who could have been spared for frontier line policing, being spread over a proportionally longer stretch of frontier, may have been put in closer reach of each other for the sake of greater security.

From the Neckar southwards the emphasis is quite different. It has long been recognised that in the late first and early second centuries, Roman interests extended beyond the Neckar. In the Flavian period a Roman imperial estate existed on the far side of the river. There were forts along the river line - full-sized by c110 and quite closely spaced (3-9km) - and it has been conventional to think of them as forming a fortified frontier line. However, perhaps it would be more instructive to take the Stanegate in Britain as a parallel. The primary inportance of each lay in its use as a transport route and communications corridor. On the Stanegate, as on the Neckar,

there was a linear disposition of sites, and Roman treatment of the land beyond as if it were Roman territory, as testified by the *censitor* in Annandale. Yet, as has been argued, it makes more sense to view the linear arrangement of sites along the Stanegate as supervising the route, and there is little reason to think that it was viewed as a definitive frontier line. The key to the situation appears to be the same in north Britain and on the Neckar: however permanent the arrangement of forts along the river was considered, the Romans had evidently not resigned themselves to advancing no further.

If conquest was not still taking place, consolidation of conquest, in part by advance into previously ungarrisoned areas, was still an active Roman pursuit. This seems to mark the crucial difference between the area under consideration and Germany north of the Neckar, and it means that there are no very early watchtower systems in the Neckar area or in Raetia. To scholars seeking in Raetia a defended frontier against external attacks, the comparatively very slow development of a linear frontier system in Raetia has been taken to show that 'Der Grenzabschnitt nicht so sehr durch aussere Feinde bedroht war...' (Baatz 1975, 216).

Although similar in possessing open military dispositions and no definitive frontier line, there is a clear contrast between Britain *c*90-*c*105 and Raetia in the same period: in the former case troop withdrawal resulted in a gradual retreat of military installations, whereas what we see in Raetia, where there was no heavy concentration or increase in troops available, is a progressive pushing forward of the garrison posts. It is interesting to speculate whether this is the result of differing attitudes of local peoples to the Roman occupation, or whether there was simply a Roman will to push matters beyond Rhine and Danube to a rational conclusion, a will that was lacking in the neglected province of Britain.

A comparison of the size of the areas involved and the distributions of known military sites does not suggest that the Roman army was faced with a less formidable area of land to subjugate in Raetia, or that it was in a numerically much more advantageous position than its counterpart in Scotland (cf, eg, Figs 9 and 15). Raetia was one of only two frontier provinces in Europe not to possess a legion at this date; the *ala milliaria* placed at Heidenheim from the 90s onwards perhaps deliberately compensated for that omission. Furthermore, had the will been lacking to find a rational terminus to occupation north of the Tyne-Solway isthmus, the Romans might be expected to have constructed an artificially defined frontier there sooner than they actually did. On the contrary they evidently still looked to a settlement of the problem north of the isthmus, even after *c*105 when it must have been appearing less and less likely that this would be achieved. Finally it will be noted that in Raetia in this period the outermost screen of forts was able to move forward because old bases were given up (as had been the case during the conquest of lowland Britain). While there were some rearward holdings, such as a series of forts which survived for a time on the Danube, there was no continuous network of forts and roads left covering the land running back from the garrisons most recently pushed forward, as was generally the case with the Flavian occupation of north Britain.

These considerations lead to the conclusion that the Roman occupation of Raetia may not have been as vehemently opposed as it must have been in north Britain. No doubt this in itself would have had an effect upon the Roman will to go on; if not the end, then one end, could be glimpsed in the most rational linking of communications between Upper Germany and Raetia. No such end could easily be discerned in Scotland. Nevertheless, at a time when it is usual to emphasise the will of the Romans in frontier development (eg Breeze 1988), it is of interest to note that the archaeological evidence does suggest that the

army was faced with much more formidable opposition in one area than in another.

It is usual to view the Roman military advance in Raetia at this time as part of a rational process, with a series of more or less clear aims, normally characterised as defensive. The dispositions are seen as advancing to the places where they will best protect the provincial capital, and secure the interprovincial routes between Upper Germany and Raetia. As the actual development of the frontier is analysed, it must be remembered that now not all historians would as easily credit the Roman army with such a capacity for rational aims and defensive actions (Isaac 1990). However, without ostentatious wars of conquest, or notable setbacks, the Roman army in southern Germany can be seen to have spent many decades gradually adjusting the arrangement of its frontier installations, and it would be taking a very negative view indeed not to see in this frontier development a certain consistency and progression. Rejecting the idea of a masterminded grand imperial frontier strategy should not, as was concluded in relation to the choice of frontier lines further north, preclude the possibility that the provincial armies on the ground assessed the problems of border security in a consistent and realistic fashion.

With the forts of the Schwabian Alb, established from c90 onwards the idea has come to prevail in recent years (Schönberger 1985, 387; Heiligmann 1990) that their main concern was with the safeguarding of the route between Upper Germany and Raetia, which now lay in advance of the old forts on the Danube. Still usually referred to as the 'Alblimes', there is in fact no reason to view these forts as forming a delineation or a linear defence. It must come as no surprise that, so far, none of the paraphernalia of linear frontier systems, such as watchtowers, has come to light. The forts were positioned so that they could have monitored movement across the Alb, for they are placed on the most convenient

access routes, but as with the Stanegate, they are as well positioned to protect a lateral communications corridor. On the analogy of the British frontier of the same years, it may be that no artificial frontier line was developed because it was believed that it was likely that there would be further advance - as in this case there actually was. Again we see that frontiers of the artificial and linear sort are not drawn up unless it is believed that advance has definitively halted. It is very likely that the possibility was considered that the Voralb, the fertile area on the north slopes of the Alb, would one day be occupied by the Roman army, if it was not already under Roman control, in the same way that Roman control without garrisons was postulated north of the Stanegate (3.4 above). The Voralb was very closely related to the area beyond the Neckar, also already under Roman control.

Intimately linked with this is the garrisoning of the Nördlinger Ries, to the northeast of the Alb series of forts. Schönberger (1985, 388) has outlined the possible reasons for an early Roman occupation of this circular basin, 25km in diameter, created by the impact of a giant meteorite. It is agriculturally very rich, and therefore probably supported a substantial population. Schönberger suggests that it would be a vital corridor for manoevering forces to meet an attack from the north aimed at the provincial capital. Thirdly, an ancient trade route, a continuation of the *Via Claudia*, probably ran north through the Ries from Augsburg to cross the line of the later frontier. Like the Wetterau in Upper Germany, the Nördlinger Ries could not be left to peoples outside the empire if there were to be any Roman holdings beyond the Rhine and Danube at all, and just as the Wetterau determined the course of the Upper German frontier, so the Nördlinger Ries would basically define the course of the Roman frontier north of the Danube.

The origins of the later frontier line lay in the road which struck out from an early date - at about the same time as the

Ries itself was occupied - from Pforring and Kösching by the Danube towards the area north of the Ries, with Pfunz and Weissenburg established as large and important stations on the way by *c*100. By *c*110 a series of forts of various sizes lay along a continuation of this road skirting the north edge of the Ries and supervising the traditional north-south route entering or leaving the Nördlinger Ries. Theilenhofen, Gnotzheim and Unterschwanigen are all clearly situated in an evident gap in the land above 500m which forms the Schwabian Alb and Frankische Jura, a gap which opens directly into the Nördlinger Ries and the route to Augusta Vindelicum. The early Roman concern here was obviously the control of movement through this gap.

At first sight this might appear as a piece of grand strategy directed against a military threat; the Roman dispositions, with the road leading from Eining on the Danube directly to the danger-zone north of the Ries, apparently allowing the rapid deployment of forces to deal with an attempted incursion through the gap. However, the road from the Danube may also be viewed as simply the usual sort of penetration road into a newly garrisoned territory, necessary for the supply and safeguarding of an occupying force. It is an indication that the Romans were more concerned with regulating routine poulation movement and discouraging small scale raids (rather than countering a strategic onslaught) that from the beginning the garrisons in and north of the Ries were scattered and widely spaced out so that each covered a place where passage was possible. In some cases they were very small posts. There was not a large mobile reserve, placed say in the Ries, with which strategically to counter an invasion.

Raetia's milliary *ala* lay 50km southwest of the centre of the Ries, at Heidenheim, where it could more easily cover the road system crossing the Schwabian Alb. In the Ries itself the forts founded in the 90s and lasting only until the early second century were only two: Munningen (2.70ha) and

Nordlingen, of unknown size. The former in any case owed its existence to the junction of the *Via Claudia* and the road running east from Oberdorf. North of the Ries, Gnotzheim held a cohort at the road junction where the road from Weissenburg met the entry into the Ries; Unterschwanigen, supervising the west side of the passage into the Ries, was only 0.70ha in size (Baatz 1975, 230). Theilenhofen, between Weissenburg and Gnotzheim, and 2.25km behind the later frontier line, may have originated by *c*110. It clearly played a role in blocking the access corridor, but could hardly, having such a forward position, have contributed to a mobile reserve. It is often suggested that it replaced Munningen, in the Ries (Baatz 1975, 238; Schönberger 1985, 388); while this is possible, it might rather have replaced the Flavian site which might one day be found where the road from Weissenburg crosses the Altmühl. If Ellingen's timber phase originated this early (*c*110), its small size also implies a detachment or *numerus* engaged in frontier police work rather than a strategic placement in the gap into the Ries; this is also implied by its proximity to Weissenburg, only 4km to the south-southwest. The larger fort overlooked the major arterial route from the Danube to the Foreland of the Ries; the unit in the smaller, on a spur of rolling land between two river valleys running north-south, presumably served an independent role of surveillance. In all of these cases, then, the early forts seem to have been established either in relation to the road system, or to monitor movement in and out of Roman occupied territory. Their concerns seem to be the strictly local ones of occupying garrisons, more concerned with policing and surveillance than preparations for invasion.

The road running from Kösching to Weissenburg and beyond invites comparison with the Stanegate in Britain, for like the Stanegate this road was eventually supplemented by an artificial linear frontier lying a short distance to the north. As in the case of the Stanegate, the road itself hardly acquires the characteristics of a linear frontier. This should

come as no surprise, for there is even less reason to suppose that the Raetian road ever served as any kind of frontier delineation. The early fort sites associated with it, discussed above (1.6.2; 1.7.2), are not concerned with preventing movement across the road; indeed most do not lie upon the road itself. They were apparently concerned with monitoring movements by greater or lesser parties of people, as an occupying army might be expected to do. It was just in front of these sites that the artificial frontier was eventually provided. But before the provision of the artificial frontier, it must be assumed that the army in the foreland of the Nördlinger Ries had not ruled out further advance.

The distribution of sites along the Stanegate after c105 is not exactly similar to that in the foreland of the Ries, but there are resemblances: in both arrangements forts occur on both sides of the road (the discovery of a pre-Hadrianic site at Chesters would increase the resemblance still). Nevertheless the impression gained of the sites along the central Stanegate is that they are most closely concerned with the supervision of the road. It may be possible to account for this: it has already been postulated that the comparative frontier development suggests that in north Britain local resistance to the Roman presence was more fierce, and that therefore the army found itself in greater danger, than in Raetia. Hence a greater provision of stations along an important road.

A closer parallel in Britain would be provided by a road and accompanying system of forts that have not here been considered in detail, precisely because they did not function as a linear frontier. The road in question is the penetration road that runs north from Camelon via Ardoch and Strageath. It started life, like the Raetian road, as an invasion route which ran around the northern fringe of fertile territory which the Romans wished to protect. The British road may have linked the armies marching up through central Scotland with Roman

dispositions (which await discovery) at the mouth of the Tay in much the same way as the Raetian road linked troops lower on the Danube with those operating in the Nördlinger Ries. There was a brief interval when the Gask linear frontier was established on this line, but this was a coincidental use of a convenient line: the road would not at this time have functioned as an arterial or penetration route. Probably just before this episode, the road operated as an important route with auxiliary forts stationed along it at intervals (just as on the road running from Eining), but now forts were also pushed forward of the road into the mouths of the highland glens, perhaps to monitor movement in much the same way as the sites that have been considered north of the Raetian road. The presence of a legionary fortress in Scotland suggests that this arrangement anticipated the final conquest of the highlands. In Raetia, when the Ries was secured, no further advance may have been contemplated. But before that stage was reached, there is no reason to believe that the military dispositions in Raetia were forming any kind of demarcated linear frontier. By about c110 the process by which the outermost dispositions north of the Nördlinger Ries began to coalesce into a linear frontier arrangement, with patrol track and watchtowers, had begun. Having started so much later than other stretches of frontier in Upper Germany north of the Neckar, the development in Raetia now proceeded at a much more gradual pace. Once again this suggests that the problems which faced the Roman troops in Raetia, and which provoked the construction of a preclusive frontier, were of a lower order of intensity, or were slower to develop.

3.6 Conclusion

The above study has shown greater variation in what was happening in different frontier provinces at various times than is often supposed. To a large extent this has been explained in terms of natural limits of occupation. In Germany and

Raetia these comprised the areas beyond Rhine and Danube which needed to be occupied in order to allow for effective communications between provinces and to prevent the provinces from being threatened. To have gone beyond these limits would have involved a large scale offensive beyond the lower Rhine and the central Danube, reviving the policy of the Augustan age. It is hoped that it is not historically deterministic to assert that this was out of the question. In Germany and Raetia these natural limits of conquest had, by the late-Trajanic period, for the most part (though not entirely) been reached.

In Britain the natural extent of the Roman constituency, the edge of the Scottish Highlands, was achieved only briefly. Circumstances, probably troop withdrawals precipitated by the emrgency of *c*86 onwards on the Danube, made practical occupation of all of that territory impossible. This led to the eventual building of a frontier (Hadrian's Wall) at the edge of what could be occupied; but it took the Romans a generation to accept this. All this time, frontier systems had been elaborated in much of Upper Germany. In Britain there are no intervening frontier systems, at least of the linear type, to be found.

Thus artificial linear frontiers were built where there were no natural lines of demarcation and security; in Britain, because conquest was incomplete; beyond the Rhine, in the places where there were no substantial rivers to mark the frontier line. Once constructed they tended to stay where they were, permanently. It is suggested, on the basis of the above study, that their extension into entire frontier systems (after the first use of watchtower systems in localised areas) was the result of a conscious decision. They did not spring up accidentally, or by reflex response to military setback; least of all were they temporary expedients of warfare or campaigning. It is suggested here that the most likely context for the decision to plant watchtower frontiers in Britain,

Upper Germany and Raetia is the Danube crisis of c86-92, which decisively tipped the balance of military concern away from the northwest. These frontiers grew out of the realisation that the lines they marked were probably going to be there for as long as anyone could forsee; of course there were instances where this was not the case, but they are really exceptional.

While the linear systems did evolve from the congealed dispositions of troops which had ceased to advance, as Mann clearly saw, this did not happen automatically. A conscious decision had to be made, at some level. It was not made in north Britain for a generation after c86; the building of a frontier under Hadrian represented a new policy and cannot convincingly be shown to be a continuation of a process which had begun under Trajan. In the eastern Wetterau the dispositions which immediately preceded the building of an advanced line of towers had none of the elements of a linear frontier. Here also the frontier line came suddenly; and this was long before Hadrian's accession.

The watchtower systems, with their garrison forts, were not provincial boundaries. Nor were they a coordinated system of defence against invasion; they were decided upon in piecemeal fashion to form a system of border surveillance. Such security was necessary because large communities of free peoples remained outside the zone of practical occupation. Some sections faced threats of greater intensity than others; all were concerned with local interception of raiders and infiltrators. The choice of location of the various frontier systems in relation to one another (while to a great extent influenced by natural features such as rivers) was entirely rational.

In Upper Germany, frontier lines were adopted at an early stage, and for the most part were presumably effective in their role of border surveillance. In Britain, the Romans were forced back from one line to another (the unique and formidable

wall of Hadrian) over a generation of warfare. In the area of the Neckar and in Raetia over an even longer period the Roman army progressed gradually and leisurely towards a definitive frontier. With the exception of the *Sibyllenspur*, which in any case can be argued not to have been a border surveillance system of the type here considered) no temporary linear frontiers were built on the way. Although troops were probably drained from Britain, there was always a much greater proportional number of troops there than in Raetia. This seems clear evidence for a more formidable local resistance to Roman occupation. Like the development of the Roman frontiers, the resistance of local peoples was far from uniform throughout northwest Europe.

So it was the inability to overcome resistance with available resources (crises on the Danube generally draining the resources) and the inability to extend conquest indefinitely, which led to the invention of the artificial linear frontier, in different ways at different times. It has long been lamented that the Roman army began to lose its way; that momentum was lost; that this happened without people particularly realising it. What is suggested here is that to the individuals responsible for decision making on the frontiers, much of the trend of what was happening must have been perfectly clear; that the frontier systems consequently constructed in the Flavian-Trajanic age were self-conscious institutions, and not chosen and built without a large measure of rationality.

3.7 A note on terminology: the use of the term *limes*

Until five years ago, few writers setting out to describe the military works considered in this thesis would have hesistated to use the term *limes* to describe them. However, B Isaac, in an article published in 1988, has suggested that the term *limes* was never used in antiquity in the sense of a defensive system

of military installations (even though in modern usage it has become synonymous with the defensive and administrative systems known to students of Roman frontier studies). In earlier writing, he argued, it was used in the sense of a military road or a demarcated land boundary; in the late Roman period it acquired the sense of a garrisoned zone. 'The common translation of the term as "defended border" is incorrect for every period' (Isaac 1988, 125).

Isaac's point that there is no evidence for the word *limes* being used in reference to specific military installations must be accepted. Hadrian's Wall and the Antonine Wall in Britain were both always referred to as a *vallum* in inscriptions. On the Continent individual towers are referred to by such terms as *burgus*. As Isaac says, all of the references in the sources to *limites* being constructed or laid out almost certainly use the term in the sense of a road.

It is possible to suggest, however, that in the few sources which refer to *limites* in the sense of land boundaries of the empire (a sense about which there is no disagreement in these examples), the concepts of 'frontier system' and 'demarcated boundary' are rather more blurred than Isaac allows.

In the following passage from SHA *v. Hadr.* 12:

in plurimis locis, in quibus barbari non fluminibus sed limitibis dividuntur, stipitibus magnis in modum muralis saepis funditus iactis atque conexis barbaros separavit

Isaac claims that *limitibus* cannot refer in any sense to military installations, because the passage refers to something - a notional, demarcated boundary - that existed before Hadrian's palisade. 'From the wording it is clear that it was called *limes before* Hadrian built a permanent structure to mark it as such' (Isaac 1988, 128). However, as we have established, Hadrian's palisade was merely an augmentation of a

continuous frontier line physically demarcated by watchtowers and patrol track since the Flavian period. The passage could be taken literally as saying 'where not rivers, but watchtower systems, existed, Hadrian added a palisade'.

There are two major difficulties with seeing the *limes* as an abstract entity or notion with no relation to the military installations except coincidence of site. Firstly, apart from the watchtower systems of Upper Germany and Raetia, or the three discernable linear frontier systems of Britain, there was nothing else to demarcate the boundary that was the *limes*. Surely, a writer with the notion of *limes* in his mind, seeking to place it in a real setting, would think first of these linear arrangements of military installations, just as Aelius Aristides did when he sought to express the nature of the frontiers by referring to forts, walls and garrisons in a ring around the world. Secondly, as was suggested by our review of the earliest development of linear frontier systems, the decision that there would be no further advance, and thus the definition of the boundary of a province such as Upper Germany, were both intimately linked with the building of artificial frontier systems. Once the decision had been made, it was the army that demarcated the boundary on the ground, in its own way, for purposes of security. There is no example of a land frontier said to possess a *limes* where the very earliest demarcation of the provincial boundary was not carried out by the military.

Thus it seems impossible to rule out the possibility that in a passage such as the following, the term *limes* carries undertones of a line physically demarcated by the military:

[The emperor] per limitem Raetiae ad hostes extirpandos barbarorum terram introiturus est (ILS 451).

The same association of limes in the surveyor's sense and the concept of a border marked by a military installation is seen in the Antonine Itinerary:

Iter Britanniarum... A limite, id est a vallo, Praetorio...

In Britain the whole frontier system was evidently referred to as 'The Wall', just as it is today by archaeologists. In Germany, especially before the construction of the paling, or on the Gask, there would have been no such convenient catch-all term, and in fact we have no idea how Romans on the ground, if they did not use the term *limes*, could have referred to a system of installations forming an interconnected linear frontier.

An observation of Isaac's may help to support the possibility that frontier installations could be included in the concept of *limes*. On the basis of SHA Hadr. 12 he points out that *limes* refers strictly to land boundaries, and not to rivers. This is reminiscent of the conclusion that has been arrived at in this thesis: that formal linear frontier systems do not occur on the great river frontiers (where there are chains of forts, but the river itself takes the place of a cordon of watchtowers). The only provinces in the empire with demarcated land boundaries (Isaac's *limites*) are Britain, Upper Germany, Raetia and Dacia; precisely where archaeologically distinctive continuous frontiers occur. This again suggests that the land boundary or *limes* was seen as demarcated by the early watchtower frontiers and the systems into which they developed. In Britain the *limes* or demarcated boundary had no separate existence from the military works, for presumably it lay on the Tyne-Solway where previously it had been laid out on the Gask in Scotland. Is it not futile to argue that in either case the towers or the Wall had nothing to do with the concept of *limes* in onlookers' minds? Conversely, there is no example of a source referring to a *limes* in the sense of a boundary in circumstances where the frontier remained unsettled, or military installations had

not yet formed a linear disposition - as, for example, in north Britain between c95 and c120.

None of this is to deny the primary meaning of the term *limes* as 'land boundary', however, and it follows that the suggested connection of the term with systems of installations must be rigorously confined to those land frontiers which were laid out as demarcated boundaries in strictly linear fashion. Their distribution is restricted to northwest Europe.

In Dacia, watchtower systems and barriers were interspersed with the natural obstacles provided by the Carpathians; mountains also dominated the Cappadocian frontier north of the Euphrates. Mountains, like river frontiers, did not attract the term *limes*. For the porous systems of military control in the East and Africa, the term *limes* would be quite inappropriate. As we shall see (7.3-4 below), here there were no demarcated boundaries, or truly linear systems of military installations. Even though these are frontiers where in theory there could have been a land boundary to the province, the word *limes* is never used to refer to these areas in the Principate (except for *limes Tripolitanus* in the Antonine Itinerary, for which an explanation is advanced in 7.4.4).

The suggestion made here, in short, is that although *limes* was never used on the ground to refer to particular installations such as Hadrian's Wall, or the German palisade, in those provinces where military setback led to the delineation of a land boundary or *limes*, this, and the artificial works which defined it, were in practice inseparable. The two things may have become blurred into one concept when the whole system was viewed from outside.

Thus the term *limes* is used in the title of this work, which sets out to consider military installations, for these reasons: firstly, it is a contention of this thesis that linear frontiers were a product of policy rather than organic growth

on the ground. Thus they were intimately linked with the demarcation of the *limes* of a province. Secondly, the emphasis is on these frontiers as linear systems, and not mere collections of individually named parts. There is no other word known which generalizing commentators (as opposed to soldiers on the ground erecting inscriptions on individual installations) could have used to refer to the whole system of a fortified land boundary. Thirdly, the special linear frontiers considered in this thesis had a highly restricted geographical distribution which coincides with the use of the word *limes* in the sense of a land boundary in the sources. The over-extensive modern use of the word *limes* criticised by Isaac finds its exact parallel in the tendency to see preclusive linear frontier systems where in fact quite different frontier arrangements prevailed (eg in Africa). If the word *limes* is retained here - *pace* Isaac - in an archaeological sense, it is also retained in a highly restricted one.

Chapter 4

SECOND CENTURY FRONTIER DEVELOPMENT IN UPPER GERMANY AND RAETIA

Much of the first two chapters of this work was spent in questioning the linear character that has been attributed to certain dispositions of Roman military installations of the Flavian-Trajanic period, and isolating those that can be seen to have been deliberately arranged as linear frontier systems. As soon as the student turns to the second-century frontiers of northern Britain and Germany and Raetia, much of the ambiguity of the earlier military dispositions evaporates, as the age of the self-evident linear frontier is entered. From the reign of Hadrian onwards, our task is less to identify linear frontiers, than to compare the various developments of the great preclusive linear systems that had become a feature of the age. This, at any rate, is the case for the land frontiers of northwest Europe; as we shall see, in other parts of the empire, even in the second and third centuries, the very existence of formal linear frontier systems may still be questioned.

This chapter attempts to trace the development of the formal linear frontier systems of Upper Germany and Raetia after the late-Trajanic period. Close attention will be paid to the problem of chronology, for it is only by attempting to refine the dating of the completion of various sectors that it can be established that it took much longer to arrive at a definitive frontier line in some areas than in others. The problem of the purpose of the second century systems is left to the comparative analysis of Chapter 6. For the present, it remains to chart the process by which the Romans between Rhine and

Danube moved, at different rates in different areas, towards the notion of a definitive linear frontier, and began to construct ever more elaborate running barriers to mark such lines.

The Hadrianic period saw the enlargement of certain Upper German fort sites to auxiliary size, and the addition of several '*numerus*-sized' forts, but it is no longer considered that in one fell policy swoop 'Hadrian discontinued Domitian's excellent scheme of three lines of defence in Upper Germany by moving his cohorts forward to the *limes* itself from many of the forts to the rear, which he abandoned' (Brogan 1935, 17). That was the view of Schleiermacher (1967, 218-21). As the foregoing account should have made clear, now 'Man glaubt ausserdem nicht mehr an eine 'Limesreform' Hadrians in Obergermanien' (Schönberger 1985, 393). The road forts (except for Friedburg) had been given up by *c*110-115; the eastern Wetterau frontier and its forts established by *c*110. Under Hadrian we see the continuation of a process of increasing the number of units stationed upon the linear frontier which had begun in the Flavian period and which had been carried on under Trajan. If Hadrian's reign saw the decisive general application of a running barrier in this sector, in terms of the distribution of forts, there were only limited additions and alterations left to that ruler. If anything, Hadrian's reign saw a lull in the process of intensifying garrisons on the linear frontiers, which were to receive more new sites after the mid-second century.

4.1 The early development of continuous frontier barriers

Already by Trajan's reign - sometime in the period *c*100-*c*120 - the first lengths of timber fencing had been arranged along the northern Wetterau frontier (1.3). The general application of a timber palisade to the Rhine-Main frontier is traditionally dated to Hadrian's reign on the evidence of SHA Hadrian 12.6

(quoted in 3.7 above). In general the uniform nature of the palisade has tended to support the belief that it was provided as part of a general building programme, although there were variations in the techniques of construction used. At the time when the *Vorverlegung*, or replacement of the Odenwald-Neckar frontiers with a dead-straight frontier line advanced up to 30km to the east, took place, the palisade still stood alone as the continuous frontier barrier. The same is true in Raetia: the barrier, was extended towards the west at various dates, culminating in the construction of the final stretch north of the Rems, east of Lorch, in the mid-Antonine period. But at that final stage of completion the only running barrier to be supplied was the palisade (or other kinds of fencing). The general addition of the earthwork known as the *Pfahlgraben* in Upper Germany, and the Raetian stone frontier wall, are events that did not take place until after the whole frontier system had taken its final form.

4.2 Outposts beyond the Odenwald and Neckar before the later frontier advance?

'Hier muss aber die endgültige Vorlage des Fundstoffes und die Interpretation im einzelnen noch abgewartet werden' (Planck 1988, 267).

Schönberger, originally in 1957 (Schönberger 1957, 74-80), then in modified form (1969, 168-69), expressed the view that certain sites on the later outer frontier, established under Pius between the Main and Lorch, had originally been occupied as outposts beyond the Odenwald and Neckar frontiers under Hadrian. The sites claimed, on the basis of the presence of samian stamps identical to examples recovered from the demolition levels of the Saalburg *Erdkastell* (demolished before 139), were Miltenberg-Altstadt, Osterburken and Öhringen-West. These sites had also produced tiles of the XXII Legion thought to date to the Hadrianic period; so had Jagsthausen on the

outer line, although the last site had produced no earlier samian. Baatz (1976b) has shown, however, that this group of tiles does not indicate occupation before the mid-second century. The places which Schönberger (1985, 395) still believed in 1985 to have been held in this way were Miltenberg-Altstadt and (not one of the original candidates) Welzheim-Ost.

The reason for discarding Öhringen-West and Osterburken from the series of proposed outposts stems from excavation which has taken place at these sites since Schönberger's 1969 article. At Öhringen prolonged excavations by Schönberger have failed to provide clear proof of which of the attested units - *cohors I Helvetiorum* and several *numeri* - resided in which of the two known forts, Öhringen-West *(Burgkastell)* and Öhringen-Ost *(Rendelkastell)*. It is generally felt, however, that the western fort, *c*2.20ha with an initial timber phase, was most probably the base of *cohors I Helvetiorum* upon its move from Böckingen, and that this is the earlier of the two forts (Baatz 1975, 196-97). No evidence for earlier occupation was found here (Schönberger 1972); the conclusion drawn was that *cohors I Helvetiorum* was the earliest garrison involved at Öhringen, and that as the unit is still attested in Böckingen in 148, Öhringen can no longer long pre-date the *Vorverlegung*. Öhringen-West was notably well defended from the beginning with three ditches: the possibility has been raised that 'hat man es als Basis vom Neckarlimes her in die regio translimitana vorgeschoben, um von diesem wichtigen Verkehrspunkt aus die Massnahmen für die Errichtung der vorderen Limeslinie zu treffen' (RiBW, 463). Osterburken (stone from the outset, 2.10ha), similarly formerly cited as an outpost site, has produced no further evidence of pre-mid-second century occupation, and also seems to have received a unit directly from the old line, *cohors III Aquitanorum* from Neckarburken (2.20ha).

Turning to the sites still claimed as outposts by Schönberger, problems surround the fort at Miltenberg-Altstadt. Here too the fort received a unit from the former line, *cohors I Sequanorum et Rauracorum* from Oberscheidental. Slight traces of a timber predecessor to the 2.70ha stone fort at Miltenberg-Altstadt have been detected (Schönberger 1985, 479). Five samian stamps from the site are also known in the Saalburg *Erdkastell* demolition levels. Recently, Beckmann (1986) has argued, despite this, that in general the pottery from Altstadt is not older than that elsewhere on the outer frontier.

At Welzheim-Ost (stone, 1.60ha; not one of Schönberger's original candidates) it seems clear that the smaller, east fort originated earlier than its western counterpart, a short time before the middle of the second century (Schönberger 1980, 545; RiBW, 616); ie probably in the late-Hadrianic or early Antonine period, before the rest of the *Vorverlegung*. This conclusion is reached on the basis of the samian from the site. There is no certainty at Welzheim which unit, if any, came directly from the rearward frontier; it is often said to have been *ala I Scubulorum* (eg RiBW, 613), but an *ala* inscription from Welzheim is incomplete and does not name the unit (ORLB 45, 13-14).

In only one case, then, is there a really firm suggestion of a foundation date earlier than the general move to the outer frontier under Pius. Welzheim-Ost can be accepted as the site of an early outpost, and it is notable that its relationship to the running outer frontier strongly suggests that the fort might pre-date the laying out of the line (Baatz 1975, 205). There is, of course, the incidence of the *Erdkastell*-type samian at some of the other sites to be reckoned with. It may be noted that in every case we are dealing with a unit moved wholesale and directly from an existing base less than 30km away. The *Vorverlegung* is thought to have been a bloodless advance. In these circumstances, it is easy to imagine the units transporting existing stocks, or personal possessions, of pottery to their new residence; if the units moved in c155, the

samian in question would only have been residual by about twenty years, and it need not occasion surprise to find pottery of this age still in use at these sites.

4.3 Second-century frontier development in Raetia (Figs 10, 11, 12)

In dealing with the development of the network of military occupation in Raetia after c110, it is tempting to look for a distinct Hadrianic frontier development, as is seen in Hadrian's Wall in Britain and possibly in the general provision of a palisade on the land frontiers of Upper Germany. Yet such a development is difficult to detect. There is merely continuous slow development of the military network throughout this period; Hadrian's reign marks no special watershed but, as in the development of fort dispositions in Upper Germany, is merely a stage in a process of development which had begun long before, and which, in the Raetian case at least, would not approach completion until after Hadrian's death.

For this reason, it is not possible to present a series of really closely dated maps of the frontier dispositions of Raetia; rather the developments must be presented as taking place in a series of very broadly dated phases. So after c110 there is a map representing the situation as it had generally developed in Raetia by the time of the early part of Hadrian's reign, ie a picture, very broadly, of dispositions as they might be c110-c120. Secondly the situation as it had developed by the end of Hadrian's reign; ie covering the developments, very broadly, of the period c120-c140.

4.3.1 Developments in Raetia c110-c120 (Fig 10)

In contrast to the land frontiers of Upper Germany, the frontier east of the Neckar remained open under Hadrian; its

evolution was still taking place. As in Lowland Scotland between *c*90 and *c*105, the Roman army evidently perceived that its dispositions would not last forever more as they were; in this case further advance here and there to rationalise the situation was to take place.

A fort (2.20ha), discovered from the air at Eislingen in 1966, cannot at present be closely dated. But it is thought to be early-second century, and its position, probably as a post on a road linking Köngen (or Stuttgart Bad-Canstatt) and Heidenheim (RiBW, 276-77), suggests its role, although the actual road and other installations to complete a supposed system of Trajanic-Hadrianic date, forming a new forward disposition linking the Neckar to the Alb, have not yet come to light (Schönberger 1985, 469). Such a disposition would have been a garrisoned route, not a formal linear frontier.

Associated with the same advance may be the installation discovered in 1976 at Deggingen (Planck 1988, 262-64) in Landkreis Göppingen (0.30ha). Planck uses similarity of size to argue that this site was associated with the *Sibyllenspur*-associated fortlets of Dettingen and Donstetten, although it might be considered unlikely that the *Sibyllenspur* was still functioning with such an installation so far in advance of it.

Probably by this time the forts in the Nördlinger Ries at Nördlingen and Munningen had been given up (Schönberger 1985, 471), although a rather later date of 120-130 has been suggested (Planck 1976, 445); the third Ries fort of Oberdorf may well have outlived the other two. Meanwhile various alterations took place on the sector of the frontier north of the Ries, where a natural north-south access corridor ran through the Alb. The fort at Ruffenhofen, where the earliest known fort is of stone (3.70ha), is thought to date to the earlier second century, although any foundation date must be extremely vague given the lack of evidence (Schönberger 1985,

471). Baatz (1975, 227) has suggested that it was built for the unit that must previously have lain in the western Ries, at Nördlingen. The fact that the Ries forts were given up and an equivalent number established at some date on the frontier to the north is here taken to imply a sequence, with Ruffenhofen and Dambach being established later than other northern Raetian forts (Ellingen, Theilenhofen, Gnotzheim, Gunzenhausen, Unterschwanigen) upon the abandonment of the Ries sites. These developments may have been substantially complete by the beginning of Hadrian's reign.

The final element in this screen of forts was Dambach, where the earliest known installation is stone (0.97ha). Here again, the foundation date is obscure (Schönberger 1985, 471), and in theory, if the site had a timber predecessor, it could be as early as the forward sites of Theilenhofen and Ellingen.

But again there is a possible sequence to be glimpsed. Dambach lies 5km northwest of Unterschwaningen, a similar (only two gates) fort of timber, and somewhat smaller at 0.70ha, and may have been its successor, Unterschwaningen having only a very brief period of occupation at the beginning of the second century (Ulbert and Fischer 1983, 66). It is unfortunate that the foundation date of Dambach is unclear, for this fort, hard up against the frontier line, and seemingly aligned upon it, would surely provide a *terminus ante quem* for the establishment of the watchtower system in this sector.

West of Ruffenhofen the frontier system remained open and porous: well into the Hadrianic period there was no linear frontier in the formal sense. A road probably descended from Ruffenhofen, via Oberdorf (which had existed on the northwest fringe of the Nördlinger Ries since about the turn of the century) to the neighbourhood of Eislingen and Heidenheim, and thence to the Neckar (Planck 1988, 260 Abb. 3).

4.3.2 Development in Raetia *c*120-*c*140 (Fig 11)

Several forts on the Danube, Unterkirchberg, Burghöfe and Öberstimm, had apparently survived into the Hadrianic period (whether fully garrisoned or not until the end is unclear) but must have finally gone out of use in these years (Schönberger 1985, 396). On the emerging frontier line itself, the *numerus*-sized forts at Gunzenhausen and Ellingen would conventionally be dated to these years, but the case for an earlier foundation has been examined above (1.7.2).

At this time, the forward system of frontier forts began to be extended towards the west. Halheim, where the known site is stone, 0.67ha. is thought to be mid-second century (Planck and Beck 1987, 149), although on no clear dating evidence. The stone fort at Rainau-Buch (2.10ha) is usually seen as being a successor to Oberdorf in the northwest entry to the Nördlinger Ries.

The fact that Oberdorf was not at any time rebuilt in stone has been taken to indicate that the site must have been abandoned at least a decade before Heidenheim, which was rebuilt in stone before its final abandonment in *c*155-60 (Baatz 1975, 216). This is not an entirely logical argument: it assumes that all forts in a sector of a frontier will tend to have been replaced in stone at about the same time. It is possible, in fact, to envisage the important *ala milliaria* fort at Heidenheim receiving stone treatment earlier than others. Nevertheless, a preponderance of earlier second century coin-issues and the presence of South Gaulish samian has led to the suggestion that Buch was founded earlier than Aalen (Heidenheim's successor site), and that the foundation of Buch lay in the years before 140 (Planck 1976, 444-45).

If this evidence is accepted, it has important implications for the development of the frontier for, as Planck succinctly proposes, it means that Buch and Halheim had nothing to do with

the later frontier between Aalen and Schirenhof, but were essentially an extension of the system formed by Ruffenhofen, Dambach and Theilenhofen, forts pushed forward to supervise routes into the Nördlinger Ries.

It seems probable that the frontier developed in three main stages, with the Halheim-Buch sector being added sometime after the earliest (*c*110-c120) sector of linear frontier but before c140, and a full twenty years before the Aalen-Schirenhof sector to the west. Evidence for a possible dislocation in the watchtower system is provided by two abnormally closely spaced towers at 13/22-23 near Ruffenhofen.

By the 140s at the very latest, then, the linear system of patrol-track, watchtowers and even a running barrier had been extended as far west as Buch. The most likely place for this linear system to have terminated is the valley of the river Kocher, 4km southwest of Buch. It is possible that the line - if that is the right word - of Roman military control descended, perhaps demarcated by the Kocher valley, to Heidenheim and the Fils valley fort at Eislingen.

4.4 The Vorverlegung: The second century completion of the frontier in Upper Germany (Figs 7, 12)

The date of the *Vorverlegung* has been much debated. The watchtowers in the Odenwald were still in use, and being replaced in stone, in 145-6 by *numeri Brittonum*. It is probable that about the same time the Odenwald auxiliary forts were generally being rebuilt in stone (Schönberger 1985, 394), while two inscriptions of *ala I Helvetiorum* at Heilbronn-Böckingen (CIL 13.6469; 13.6472) date to 148. Clearly in 146, when towers were being rebuilt, this frontier was still seen as a permanent fixture, and in 148 *cohors I Helvetiorum* did not contemplate its move to Öhringen. So much for the *terminus post quem*.

The *terminus ante quem* is provided, traditionally, by the outer-frontier fort of Jagsthausen, occupied by 161 at the latest as an inscription of Antoninus Pius (CIL 13.6561) proves. Strictly, of course, Jagsthausen does not date the establishment of the whole frontier line; and if, as has in the past been suggested (see 4.2 above), it originated as an outpost of the Odenwald-Neckar system, its value as a *terminus ante quem* for the whole of the outer system would be much diminished. But the evidence of stamped tiles once used to date Jagsthausen to an earlier period is now discredited (4.2 above), and we have seen how thin is the evidence for outposts in the period before the construction of the outer line. Furthermore Jagsthausen seems to respect the running line, lying just to the rear of it, in the same manner as the other forts. By far the most convincing interpretation is that with the exception of Welzheim-Ost all of the outer forts were built after the frontier line has been laid out. The epigraphic evidence from Jagsthausen therefore makes it highly probable that it was within the date range 148-161 that the construction of the new frontier in *Strecken* 7-9 took place.

The traditionally accepted date for the move, argued for by Fabricius in 1931 (ORLA 7-9, 51), is 150-155. This view is reinforced by the argument of Alföldy (1983), on the basis of the epigraphic evidence, that C. Popilius Carus Pedo, governor of Upper Germany c151-c155, was most likely to have been responsible for the advance. This view is based on the description of Pedo (CIL 14.3610) not only as Pius' legate of Upper Germany, but also of *exercitus in ea tendentis*, implying that Pedo must have led a large scale military action which went beyond the scope of the normal military duties of a provincial governor.

However, the discovery of an inscription in 1982, showing that the *Brittones Elantienses* were still present at the *numerus* fort at Neckarburken on the old line under the Governor Calpurnius Agricola in 158, has cast doubt upon the traditional

dating (Schallmayer 1984b), raising the possibility that the *Vorverlegung* occurred as late as 158-161. However, it is possible that the *Brittones Elantienses* stayed behind on the old line after other units, including its companion cohort, *III Aquitanorum*, had been transferred. Indeed Schallmayer (1984, 121-3; RiBW, 283-84) has argued that Neckarburken may have continued to be garrisoned after the advance from the old line precisely because its situation on the Neckar placed it on a vital supply route between the Rhine and the outer frontier, with the fort at Heidelberg-Neuenheim possibly acting as an intermediate post between Neckarburken and the Rhine.

If the possibility is accepted that the late presence of the *Brittones Elantienses* on the old line is an exceptional one, then the general advance may have occurred at its traditional date before 158 after all, and the Neckarburken inscription of 158 may not really pose the difficulty that it appears to. Rather than simply returning to the traditional suggestion of *c*150-155, however, it will be noted that, whatever the strengths of Alföldy's arguments, the somewhat more abundant dating evidence for the similar advance on the Raetian frontier suggests that the decision was taken there in the period 155-60. If the two advances were simultaneous and co-ordinated, the possibility must remain that the *Vorverlegung* did not occur until very late in Pius' reign.

One further indicator of the possible complexity of the move from the Odenwald to the outer line is provided by WP 10/37 on the old line. Here, in addition to the usual single stone watchtower, another tower existed which had a flight of steps leading into it and which functioned as a temple. Although this was formerly considered to have happened while the old line was still held, with the conversion of a tower into a temple necessitating the building of a second tower, certain stylistic details of the temple-sculptures have been linked with later-second century examples in nearby forts; there are also similarities between the Victoria statue of the temple and

one found in the old-line fort at Oberscheidental (Schallmayer 1984, 103-5). Furthermore, 10/37 lies immediately by the pass (controlled by *Kleinkastell* Seitzenbuche) across the Odenwald which most directly links the Neckar and Main areas; this is the route which *cohors I Sequanorum et Rauracorum* would have had to take to get to their new base, Miltenberg on the Main. The existence of this temple and the possibility of its later second century use might point to a more complex relationship between Oberscheidental and Miltenberg than one simply being abandoned in favour of the other; the same sort of complexity, with perhaps some residual activity on the rear line, that is hinted at by the Neckarburken inscription.

4.5 The completion of the frontier in Raetia

The extension of the towers and palisade east to the Danube

The eastern part of *Strecke* 13 and the western part of 14 had received the earliest towers (Trajanic?) and palisade (Hadrianic?) in Raetia, and this was not extended to the Danube until later (above, 1.7). Böhming, the only fort forward on the actual frontier line in the eastern part of *Strecke* 14 or *Strecke* 15, and which ought therefore to provide a *terminus ante quem* for the layout of this section of frontier, has produced no pottery earlier than the mid-second century (Schönberger 1985, 487). The general alignment of the frontier line - from WP14/56 its course seems determined by the decision to follow the most direct route to the beginning of the Danube ravine, and runs on the same alignment west and east of the Altmühl - suggests that the eastern part of *Strecke* 14 and *Strecke* 15 were laid out at the same time.

The institution on the Raetian frontier of the *Flechtwerkzaun*, an irregular arrangement of two rows of timber uprights in a shallow trench (ORLA 13, 13-14; ORLA 14, 24-26; ORLA 15, 17), did not take place everywhere at the same time, although

throughout these *Strecken* (ie east of 13/22) it post-dated the palisade. In places (14/6; 14/12; 14/15; 14/17; ORLA 14, Taf 3; 5; 6) the *Zaun* was evidently built while timber towers were still standing; elsewhere (14/22; 14/25; *ibid.*, Taf 7) it clearly postdates the stone towers, suggesting piecemeal replacement of the palisade in the 140s and 150s. Had it taken place any later, a palisade matching that provided in Strecke 12 and the western part of Strecke 13 in the 160s might have been expected. Elsewhere, presumably in the oldest stretches, which required the most replacements of the running barrier, the *Flechtwerkzaun* was preceded by a *Bretterzaun* (also known as the *Bohlenzaun*), probably a wall of planks, secured in a shallow trench by rows of flat packing stones on either side, (ORLA 14, 26). In the valley of the Felchbach, by 14/34, was recovered a remarkable sequence of continuous barriers: the palisade; *Bretterzaun* 1; *Bretterzaun* 2; the *Flechtwerkzaun*; and finally, the Raetian Wall (*ibid.*, Taf 8). In *Strecke* 15 (ORLA 15, 17) the *Flechtwerkzaun* is little attested, supporting the idea that the palisade here was provided later than in the central sector of the Raetian frontier, and therefore did not need such extensive replacement before the provision of the stone Wall.

From 13/22-3 to Buch

It was suggested above (4.3.2) that the linear frontier of watchtowers was extended to the west, as far as the Kocher, with the construction of Halheim and Buch, perhaps by the 140s. The excavation at Dalkingen (12/81: 4.7.S12 below) produced two phases of a timber fence, or *Zaun*, pre-dating the palisade identifiable with that known from dendrochronology to have been supplied in *Strecke* 12 in the 160s. Furthermore, a dendrochronological date obtained from a timber barrier on the south edge of Scwhabsberg, near Buch, in 1975 was 139-140 (Schönberger 1985, 397). Thus it seems probable that the *Zaun*

in this sector represents the earliest provision of a running barrier, perhaps by or in the 140s.

West of Buch

The dating evidence available at present makes it seem highly likely that the final closure of the Raetian frontier west of Buch was undertaken after c155; the process may have been protracted. The series of forts, still without any continuous frontier line connecting them, Heidenheim, Urspring and perhaps Eislingen, were abandoned and replaced with the series Aalen, Unterböbingen and Schirenhof. The coin series from Urspring ends in 153-4 and this and the other Alb forts were probably given up in the period *c*155-60 (Schönberger 1985, 397; Heiligmann 1990, 182-87, 198-99).

Timber from the forehall of the new stone fort at Aalen has produced a dendrochronological date of 160 +/- 10, but this was from a secondary, consolidated phase, following on rapidly from a temporary timber roofing over the *via Principalis* in front of the headquarters (Planck and Beck 1987, 122). A timber well in the courtyard yielded a dendrochronological felling date of 168 +/- 10 for its timbers (Planck 1988, 268). The date had earlier been given as 179 +/- 10 (Planck and Beck 1987, 124). Finally, the recently discovered building inscription recording the completion of the Aalen *principia* is dated to 163-64 (Planck 1988, 268; Alföldy, 1986, 69). This inscription, however, might not have been erected until after the temporary timber forehall had been rebuilt in its permanent stone form. These dates would suit admirably a first occupation of the site in the mid-150s leading to a formal completion of the fort, with full, second-phase forehall, by 164.

Aalen, then, was complete by 164; and at exactly the same time, it seems, came the construction of the running barrier, the palisade, in the vicinity. Again the evidence is

dendrochronological. A felling-date of 163-4 has been obtained for the palisade in the Rotenbachtal (90m from the beginning of the *Teufelsmauer,* at 12/22-23 (Planck and Beck 1987, 107) and of c165 from the Jagsttal south of Schwabsberg, just north of Buch (Planck and Beck 1987, 140-42). These dates seem rather late to be connected with a frontier advance instigated at the end of Pius' reign. No *Zaun* preceding the palisade has yet been found west of the Buch-Dalkingen area, so it is probable that although the advance of the forts began c155, no running barrier west of Buch was constructed until early in Marcus' reign.

The sequence that emerges, then, is of a system of watchtowers extending as far west as the Kocher, possibly pre-dating the middle of the century, and with a *Zaun* being constructed along all or part of the frontier east of the Kocher before the 150s. Then, c155, the decision was taken to move Heidenheim and its sister forts forward, and the frontier was closed, perhaps in two stages. At first, perhaps, a series of timber towers was built running west of the Kocher, but ending just by Unterböbingen, where the most westerly timber tower (12/45) is known, and with the Rems itself serving as the frontier delineation west of that point. It is interesting that the frontier line running from the northeast does not attempt to stay to the north of the Rems at this point, but heads in a dead straight line for the valley bottom and the river itself. When the frontier was later extended west to Lorch, this resulted in the completed line making a curious steep descent into, and ascent from, the Remstal. The explanation for this would seem to be that originally the frontier was intended to terminate here and the river take over as the demarcated frontier line; hence the way the frontier line almost runs into the river here.

Then, in the early 160s, came the consolidation of the whole system, with the recently or not so recently completed early *Zaun* everywhere being replaced with a substantial new palisade,

which coincided in date with the completion of Aalen and the other new forts and perhaps even with the construction of the stone watchtowers and, therefore, the final closure of the frontier between the Rems and Lorch.

Thus the available dating evidence allows at least the possibility that the advanced Neckar frontier and the closed Raetian frontier were planned and constructed at the same time and met in deliberate synchronisation. Obviously, this cannot be proved, but it is a possibility that has been denied in the past. The date range for the Upper German *Vorverlegung* is strictly 148-161; for the Raetian advance 154-164; the resulting overlap, and the date range within which the advance must have taken place - if it was simultaneous on both frontiers - is therefore 154-161.

	12/1-Rems	Rems-Kocher	Kocher-13/22	13/22-14/50	14/50-Danube
c110			towers		
c120			palisade		
c130					
c140		towers, Zaun		Bretterzaun or Zaun	towers, palisade?
c150					
c155		timber towers		Zaun	
c160+	stone towers, palisade	palisade	palisade		Zaun?
c170					
c180	Wall	Wall	Wall	Wall	Wall

4.6 Later development of the continuous frontier works

The *Pfahlgraben*

This, along with the term *Wall und Graben*, is the most commonly used term to describe the great continuous earthwork with which the palisade barrier of the Upper German frontier was augmented at some date after the mid-Antonine period. It was supplied throughout the length of the German frontier, with the exception of various localised breaks and interruptions listed in the detailed *Strecke* descriptions below.

The barrier consisted of a mound of earth upcast from, and placed to the rear of, a steep-sided V shaped ditch. The average total width of the work is some 19m, some 11.50m comprising the rampart, and the ditch generally being between 6m and 7.50m wide, with a very small berm between the two, so that the outer face of the earth wall descends to form the inner face of the ditch, creating a steep and formidable ascent. In fact, these dimensions vary widely from sector to sector. There was no use of turf in the earth wall, nor is there any evidence for timber structures of any kind, whether to form additional obstacles, walkway or breastwork. It is clear, however, from the structural sequence at Feldberg (4.7S3 below) that the palisade remained in use on the outside of the ditch, at least in certain places. How widespread was this survival of the palisade in front of the *Pfahl* is uncertain; perhaps it was only retained where it proved useful. In several places the *Pfahl* follows changes in the course of the palisade so closely as to suggest that the latter was still extant and determined the siting of the earthwork. Some evidence will be considered below (eg 4.7.S2) for openings through the *Pfahl* which may have been used by soldiers servicing the palisade; such openings have only been observed in limited areas.

The Raetian Wall

In Raetia, instead of the *Pfahlgraben,* a stone wall was built throughout *Strecken* 12, 13, 14 and 15. Its average width was only 1.20m. It was built of crudely dressed, mortared stone and not provided with a ditch. It was only broken at rivers or steep stream valleys - where a palisade was always maintained as a substitute - and gateways and otherwise provided (unlike the *Pfahlgraben)* without interruption, east of the Rotenbachtal where it began (ORLA 12, 42). Apart from at stream crossings, the palisade was not maintained in use as it was in conjunction with the *Pfahlgraben*. Between WP 14/3 and 14/4 a collapsed portion of the Raetian wall showed that in this sector it must have stood to a height of at least 2.57m (ORLA 14, 53; Ulbert and Fischer 1983, 72).

Dating

The mid-Antonine advance in Upper Germany and final closure of the Raetian frontier provides a terminus post quem for the provision of the *Pfahlgraben* and the Raetian wall. Although that much is clear, there is no good evidence for the exact date at which these structures were provided, or indeed for whether they are contemporary in date. The *Pfahlgraben* has conventionally been dated to the time of Caracalla (ORLA 3, 37; cf Schönberger 1969, 174), but apart from circumstantial historical association this belief is based upon a single coin of 194 stratified under part of the *Pfahl* near the Saalburg; as Schönberger points out (1985, 409), this part could easily have been repaired or rebuilt.

More recently an earlier date in the last quarter of the second century has come to be favoured (Schönberger 1985, 409-10), though not on the basis of much new evidence. It was long ago realised that a section of *Pfahlgraben* east of Zugmantel was built in conjunction with towers that had not been replaced in

stone (4.7.S3 below); only when the line at this point, which is double, was moved forward did stone towers appear: but this need not necessarily give a general early date for the earthwork, as here, in the Idsteiner depression, an isolated section may have been provided (as in the case of the *Sibyllenspur*) before its general provision elsewhere. Nevertheless, scholars in Germany have rightly suspected that a stretch of continuous frontier displaying such affinities with the remainder of the *Pfahlgraben*, yet associated with only timber towers, should indicate that the installation of the whole frontier work cannot have long post-dated the mid-Antonine period.

The construction date of the Raetian wall is similarly obscure, although again there is a traditional, and quite unfounded, association with the activities of Caracalla (ORLA 14, 43-45).

Some light may have been shed upon this matter by the recent excavation of the structure on the Raetian Wall at Dalkingen (12/81). Here a construction level of Phase 4A, which is of one build with the initial construction of the Raetian Wall, produced an unworn coin of 161-169 (Planck 1976, 437). As it would seem likely that an interval might elapse before the replacement of the palisade in Raetia with the Wall, and as an earlier date than a third century one seems ever more likely, it is becoming increasingly attractive to seek a context in the aftermath of the Marcomannic wars for the construction of the Raetian Wall.

4.7 Second century development and the nature of the continuous frontier in Upper Germany and Raetia

Strecke 1 The Neuwied basin: from the Rhine to the Lahn

Topography

This first section of the Upper German frontier wove sinuously around the edges of the fertile Neuwied basin. Leaving the Rhine at Rheinbrohl, some 10km north of the Neuwied basin, the original line of towers - here, it will be recalled, perhaps as late as the second century - climbed straight away into the Mittelgebirge, or area of mountains of middling height, on the far side of the Rhine. *Strecke* 1 always ran through extremely broken country, only briefly contacting the fringe of the fertile lowland basin between 1/22 and 1/36, where the fort of Niederbieber would eventually be provided.

The nature of the continuous frontier

The palisade and *Pfahlgraben* went through their orthodox building sequence throughout this sector. However, the mountainous country affected the course of the frontier: in deep gorges to the north of Bendorf (for 1.50km between 1/47 and 1/50 and between 1/52 and 1/54) the earthworks of the *Pfahlgraben* were not supplied in the deep ravines. The palisade was provided (ORLA 1 Taf 14). At one point between 1/52 and 1/54, however, so steep was the slope before the frontier that even the palisade was omitted. In the hard rock opposite WP1/8 the *Pfahl* ditch narrowed to a shallow gully.

Gates and passages

At 1/8 the *Pfahl* narrowed to form a crossing in front of one of two stone towers. The palisade was not interrupted (ORLA 1 Taf 4.2). Where an ancient route is said to have crossed the frontier (*ibid.*, 70-71; Taf 5.2), a gap of 3.50m occurred in the *Pfahl* opposite the postulated tower 1/13a; a road 1.40m wide crossed the *Pfahl*, but the palisade was uninterrupted. Another passage through the *Pfahlgraben* (but not the palisade) at 1/18 was considered to be a late addition, also associated with a stone tower (*ibid.* Taf 6.3). At WP1/23, an 11m wide passage occurred in the *Pfahlgraben;* again, there was no discernible break in the palisade, and the passage occurred at a stone tower (*ibid.* Taf 7.2). At 1/26 a passage 3.60m wide occurred in the *'Palisadenzaun'*. At stone tower 1/56 there was a break of over 30m in the Pfahl, but not the palisade (*ibid.* Taf 16). A 10m break occurs in the *Pfahl*, but not the accompanying ditch, at WP1/59 (*ibid.* Taf 17); it has been suspected that a timber bridge will have negotiated the ditch. In front of the tower 1/65 occurs what must have been a very early passage through the frontier; a 2m opening in the palisade was flanked by extra-large posts; behind, the *Phalgraben* was broken by a gap 14m wide (*ibid.* Taf 18.3). This is the only example of an absolutely clear, permanent passage through both Palisade and *Pfahlgraben* known in *Strecke* 1. At WP 1/73 an interruption in the *Pfahl* has been suspected (*ibid.*, 128), but it is not clear whether this is due to the precipitous slope rather than representing a gate. Certainly the *Pfahl* was broken for 460m in the Kalterbachtal above 1/74, but the palisade here was continuous (*ibid.*, 129). Finally, a crossing of the frontier by an old road running to the Rhine valley has been suspected (Klee 1989, 49) near the exceptionally large WP1/78, although no passage through the continuous frontier is known.

Forts and minor installations

North of the Neuwied basin, the *numerus*-sized fort of Arzbach (0.70ha) and the fort at Ems (1.30ha when rebuilt in stone later in the century; possibly smaller to start with; Schönberger 1985, 460) may be late-Trajanic or Hadrianic. Ems is also usually considered a '*numerus* fort', though on no hard evidence. The situation of Arzbach right up against the frontier line is such to suggest that the watchtowers in this sector had already been established when the fort was built. In this connection we may recall the relationship between the low-grade *numeri* and frontier police-work proposed above (3.1.2). Bendorf was probably given up in Hadrian's reign (Pferdehirt 1986, 269-70). The fort at Niederberg, in the Neuwied Basin some distance behind the frontier, continued in occupation.

Before the construction of the new fort of Niederbieber in the later-second century, the two auxiliary forts here were placed by the Rhine, well back from the sinuous frontier line itself. The frontier never came closer than 3km to Heddesdorf or 6km to Niederberg. These forts were widely spaced: 14km as the crow flies, but travel between them would have been made longer by the intervention of the Rhine. At the eastern end of the Neuwieder salient, in contrast, the two *numerus*-sized forts of Arzbach and Ems were placed close up against the frontier. The former has no commanding outlook, but sits in a pass, which has been suggested, though not proven, as the site of a crossing of the frontier (Klee 1989, 50). Ems was evidently situated to oversee the point where the frontier is broken by the river Lahn.

Minor installations can also be ascribed particular roles in this sector. They were generally not much larger than the milecastles of Hadrian's Wall. The fortlet on the Forsthofweg (1/14: 0.07ha, containing small timber structure 6.25m square) was placed where, a number of old tracks crossed and ran

parallel to the frontier; a notable density of watchtowers was also provided in the sector 1/13 to 1/15 (ORLA 1, 70-74). Anhausen (WP1/41) is without such an obvious reason for its siting, but it would have been well-placed to supervise the level area of the Heimbacher Wald, where an approach could have been made to the frontier between the deep ravines of the Aubach and the Saynbach (in the latter, significantly, the *Pfahlgraben* would be omitted). The fortlet was reduced in size at some time from 0.17 to 0.07ha (ORLA 1 Taf 12).

At the fortlets of Fehrbach and Hillscheid natural passes and the possible presence of old routes are reflected by modern roads. Fehrbach (WP1/63) was situated mid-way between two passages through the frontier at 1/59 and 1/65. Hillscheid (1/71), surveys a complex of modern, and possibly ancient, crossings of the frontier to the east.

As the fortlets seem so often to have been placed with a particular ancient route or topographic peculiarity in mind, their spacing is naturally irregular and sometimes very wide:

Forsthofweg

14km

Anhausen

12km

Fehrbach

4.50km

Hillscheid

Yet the watchtower provision on *Strecke* 1 was quite intensive; not only is there a close average spacing of towers (taking into account postulated sites), but there are instances where stone towers have been replaced on three separate occasions, showing that they were an enduring type of installation, for example 1/18 'auf der Wurzel' (ORLA 1 Taf 6.3) and 1/48 'auf dem Hormorgen' (*ibid.* Taf 14).

Strecke 1 would not seem, therefore, to have been a sector where large scale, mobile raids from unexpected directions were anticipated. The small provision of troop accommodation on the frontier itself recalls that of the Taunus in the Flavian-Trajanic period. In the Neuwied basin, however, there was an immediate fertile prize for any raider who did penetrate the frontier, and perhaps for this reason the two equitate cohorts were retained on the northeast side of the Rhine rather than being moved to the frontier.

Strecke 2: From the Lahn to the Aar

Topography

In this sector the frontier cut across broken country, its course dictated by the simple need to draw a line running along the north side of the corridor of territory north of the Rhine and Main which reached from the Lahn to the Taunus ridge. The role of *Strecken* 2 and 3 was to join the two great salients of fertile land, the Neuwied Basin and the Wetterau. Across the broken uplands of *Strecke* 2 the frontier adopted a twisting course, including certain commanding heights but leaving others just outside the line. This is reminiscent of the behaviour of the Antonine Wall in Britain towards its western end. It is possible that such a lack of concern about outlook was a result of the frontier passing through a densely afforested landscape. In two long stretches (WP 2/4-14 (Becheln-Dornholzhausen) and 2/23-31 (Pohl-Holzhausen) the frontier follows the lines of two routes of pre-Roman origin; the first occupies a pass running southeast from the Lahn valley, and is lined with a number of prehistoric burials (ORLA 2 Map 1; Klee 1989, 52; 54). The frontier also follows a prehistoric route east of 2/15 (east of the Mühlbachtal).

The nature of the continuous barrier

While in general going through the orthodox sequence of palisade and *Pfahlgraben*, this *Strecke* displays one peculiarity; between towers 2/35 and 2/47, for a distance of 6.40km, the earth wall and ditch were never supplied; although excavation has shown the presence of the palisade (ORLA 2, 72-8; Baatz 1975, 97).

Gates and passages

At all of the following points, the palisade was not interrupted, but an opening through the *Pfahl* was associated with a stone, not a timber tower:

2/5 ORLA 2 Taf 2.5
2/8 ORLA 2 Taf 3.1.A
2/10 ORLA 2 Taf 3.2
2/11 ORLA 2 Taf 3.3
2/12 ORLA 2 Taf 3.4
2/13 ORLA 2, 13
2/14 ORLA 2 Taf 4.1
2/17 ORLA 2 Taf 4.2
2/20 ORLA 2 Taf 5.1
2/21 ORLA 2 Taf 5.2
2/25 ORLA 2 Taf 6.1
2/26 ORLA 2 Taf 7.1
2/27 ORLA 2 Taf 7.2

At 2/28 one of several successive paths passing through the *Pfahl* cut an early phase of the palisade, but was blocked by a second palisade. The path was only 1m wide, and was perhaps intended to give access to the space between *Pfahl* and palisade; a similar situation to 1/13A. There is another break in the earthwork of 12m in front of 2/29; another is known at 2/52 (1.50m), again in front of a stone tower.

What characterises the series of openings in the *Pfahlgraben* just listed is that they lie opposite the stone and not the timber towers; it is possible that when the *Pfahlgraben* was provided these openings were left so that access could be gained from the towers to service the palisade. Interestingly in this connection at 2/35, where there was no break in the *Pfahl*, a stone track existed on the outside of the earthwork, perhaps leading from a crossing some distance away. Here the palisade had been renewed at some time (ORLA 2, 71-2 and Taf 9.3).

Forts and minor installations

Here, compared to Britain, or any other part of the German frontier, garrisoning was very thin in the second century; the operation of these remote frontiers described above for the Flavian-Trajanic period (3.1.2) obviously prevailed here. In the mid-second century the only forts, Hunzel and Holzhausen, probably held *numeri*. At Hunzel this is based on the size of the fort (0.70ha). At Holzhausen the known fort of 1.40ha seems to have originated under Commodus (RiH, 358; Pferdehirt 1976). The known third century garrison, *cohors II Treverorum*, is usually thought to have been promoted from a *numerus Treverorum* which may have garrisoned an earlier fort (Southern 1989, 107).

It is interesting that this part of the frontier, like that around the Neuwied basin, had to be considerably strengthened during the second century. Here not only was Holzhausen built under Commodus, but one fortlet, 'auf dem Pohl bei Kemel' at 2/48 was replaced by a new *numerus* fort, Kemel (0.70ha) at some unknown date in the later second century. Whether this was linked with the activity at Niederbieber and Holzhausen under Commodus, or occurred earlier, is uncertain. A fortlet at Pfarrhofen (2/28: stone 0.15ha), which does not possess rounded corners, has been thought (Schleiermacher 1962, 202-3) to be a

late addition, and has been related to a distinctive type of late, square cornered fortlet encountered on the Raetian frontier.

Apart from the *numerus*-size forts and Holzhausen, there was also a provision of fortlets, as elsewhere in *Strecken* 1-3, much more widely spaced than milecastles on Hadrian's Wall. Between Holzhausen and the fortlet at Adolfseck, at the beginning of *Strecke* 3, the fortlets occur at 4.50km intervals, which may indicate a spacing of three Roman miles:

HOLZHAUSEN

4.50km

Dörsterberg

4.50km

Kemel

4.50km

Adolfseck

This was, in fact, perceived by Fabricius, who proposed (ORLA 3, 38-40) a regular spacing of installations, with intervals of about 4.50km, and alternating forts and fortlets, between Kemel (2/49) and the Saalburg (3/66). This scheme necessitated the assumption that at least two fortlet sites, at 3/8 and 3/24, awaited discovery. They have never come to light, and it may be doubted whether such a regular arrangement existed.

In fact, particular local circumstances seem to have determined the siting of fortlets. It is notable that Becheln and An der Ecke bei Pohl are both situated at points where the course of a pre-Roman route falls in with the frontier (Klee 1989, 52-54). Pfarrhofen (2/28) may be a late addition. Auf dem Dörsterberg (2/43) overlooked a valley (the Dörsbachtal) which crossed the frontier and in which a passage might have existed. Auf dem Pohl bei Kemel was placed, as its name suggests, upon a notable eminence which provided extensive views over the area between the Lahn, the Taunus and the mountains on the east side of the

Rhine; here also the *Bäderstrasse*, the pre-Roman route elsewhere utilised by the frontier, intersected its line. The importance of this point for surveillance is confirmed by the later addition here of the *numerus* fort of Kemel.

Strecke 3: The Taunus

Topography

In this sector, as in *Strecke* 2, the meandering course of the second century frontier was essentially determined by the course that had been taken by the first cordon of timber watchtowers arranged after *c*90. The line ran across the hilly country that lies to the north of the Taunus ridge, crossing many small passes formed by rivers on the way, and eventually converged with the main Taunus ridge near Feldberg.

The nature of the continuous barrier

In this sector there are a number of notable divergences between the line of the original watchtowers and the later continuous frontier works, in a way rather comparable to the relationship between the Turf Wall of Hadrian in Britain and its stone successor. There is a clear pattern by which the oldest watchtower cordon adapts itself to the topography, while the later continuous works occur in longer, straighter stretches (Baatz 1975, 100-104, ORLA 3, 16-19). On the later line (where there are two) the watchtowers, now always of stone, are more closely spaced. In general, the continuous earthworks - the Wall and *Graben* - do not occur on the superseded, older stretches, except where, between 3/18 and 3/29, the frontier crossed the Idsteiner depression. This must have been an important route for traffic - or hostile penetration - in all periods, and it is interesting that it

seems that extra protection was deemed necessary at this point from an earlier date than on the rest of *Strecke* 3 (Baatz 1975, 104; cf.: Schönberger 1985, 388; 409). The presence in the Idsteiner depression of the *Phalgraben* on the older line, whose towers were never rebuilt in stone, suggests that the general application of this continuous feature cannot long post-date the mid-second century, while its exceptional early presence in the Idsteiner corridor has been compared to the blocking of the Lauter Valley by the Sibyllenspur between Köngen and Donstetten at a much earlier date (Planck 1987, 421). A further realignment of the frontier took place in the region of Feldberg. Here, on the straighter, secondary alignment of *Pfalgraben*, it was observed, first of all by Fabricius (ORLA 3, 34) that the palisade had also been supplied, suggesting that this feature may have been maintained elsewhere on the frontier after the addition of the Wall and *Graben*.

Climbing over the hard rock of the Klingenkopf at 3/55, the mound and ditch were omitted in favour of a dry stone wall. This was only supplied at some date after the mid-second century; first of all the timber palisade had been supplied here as normal. At the foot of the hill the *Pfahlgraben* was resumed. The same thing happens after 3/58 on the Rosskopf, on whose heights is a famous sequence of two timber towers replaced by two stone towers (3/59) (ORLA 3, 37; Taf 8; 9). For the 1km east of the Rosskopf the *Pfahlgraben* did not follow the crest of the Taunus ridge, but ran to its southeast in such a way to be commanded by it throughout: a clear demonstration that the frontier line here could never have been defended in any military sense.

Gates and Passages

Two breaks or passages occur in the *Pfahlgraben* immediately in front of the fort at Feldberg (3/46); another, smaller, break occurs 175m to the southwest (ORLB, 10; Taf 1). The passages

by the fort only occur on the inner part of the double *Pfahl* line there, so that the outer line in effect acts as a *titulus* in front of them. At *Kleinkastell* Heidenstock 3/57) a break of over 40m is visible in the *Pfahlgraben* today, though it is not clear whether it is of ancient origin (RiH, 391). An interruption of 200m occurs in the frontier wall as it runs down the east side of the Hollerkopf after 3/62. A further passage is known near the Saalburg (ORL3, plate 10, 3), presumably to allow passage or access through the pass here; near by it are known two (Klee 1989, 85) superimposed trapezoidal small timber buildings, described as *Wachthaüser*.

Forts and minor installations

In accordance with the character of this frontier sector described above (3.1.2-3), the garrisoning of this stretch was extremely light to begin with: yet it is clear that a need to intensify the numbers of troops actually based on this part of the line was felt as the second century wore on. At the beginning of the Hadrianic period there were no auxiliary units here, only *numeri*, or at least soldiers occupying forts no larger than *numerus*-size. At some date by the mid-second century a fortlet at Alteburg-Heftrich was replaced by a fort of 0.70ha, home by the third century of *numerus Cattharensium*. At Feldberg the *numerus*-sized fort was base in the third century of *exploratio Halicanensium*. Before these sites were promoted to *numerus* fort size, the only *numerus* forts in this sector may have been at Zugmantel and the Saalburg, each of which was enlarged to a cohort fort by the end of Hadrian's reign. Zugmantel was timber, and 1.10ha in size (Schönberger 1985, 461). The Saalburg, now timber and 3.20ha, was built in time to house *cohors II Raetorum* c.R., attested in 139 (CIL 13.7462). Zugmantel sat on an old route, the *Hünerstrasse*, which crossed the frontier and in antiquity linked the Wiesbaden area with the Limburger basin; close control of this route would be vital for the protection of the fertile area

around Wiesbaden. The Saalburg similarly controlled one of the best passes across the Taunus ridge.

As remarked in the previous *Strecke*, Fabricius imagined a regular system of alternating *Kleinkastelle* and *Numeruskastelle* between the forts of Zugmantel and the Saalburg. What is in fact known of the system gives us an interval of 9km between Adolfseck, a stone *Kleinkastell* of milecastle size which secures the crossing of the Aar (Klee 1989, 65) and the fort at Zugmantel, then an 8km gap before an enclosure (0.25ha) at Eichelgarten (3/29) which has the appearance of a temporary work (ORLA 3 Taf 6). In fact the distance between Zugmantel and Feldberg was in mid-second century covered by a *Kleinkastell* after 10km (Heftrich) and after another 4km by Maisel, 4km from Feldberg. Alteberg-Heftrich was succeeded by a *numerus*-fort. Mid-way between Feldberg and Saalburg (10km apart) were two *Kleinkastelle*, each about milecastle size, separated by only 1.8km (Altes Jagdhaus and Heidenstock); there is no clearly discernible reason for their particular situation here. In general, however, the placing of the installations throughout this sector would seem to have less to do with any regularity of measurement than with the surveillance requirements of particular locations. This is well illustrated by the occurrence, only 1.75km east of the Saalburg, of *Kleinkastell* Lochmühle (0.04ha), which blocked the Köppern Valley, an obvious route across the frontier but, presumably, in antiquity as now, a less easily negotiated one than the pass guarded by the Saalburg itself (Baatz 1975, 122).

Evidence from watchtowers

Stone tower 3/23 possesses a neighbouring building, perhaps a barrack (ORLA 3, 78): it is situated just where modern road and rail routes pass through the Idstein depression. A further small building (7.20m by 6m) is known to lie 56m from by 3/31 (*ibid.*, 89). Another stone structure of unknown significance,

which has produced tiles stamped by the XXII Legion, sits on the frontier in the bottom of the Emsbachtal and is designated 3/43A (*ibid.*, 98).

Communications

Apart from the usual minor road or patrol track linking the individual installations, there is no evidence for major lateral road movement along this sector of the frontier. Indeed, topographic considerations would have rendered such a route, which would have had to cut at right angles across the spurs and deep valleys of the southern Taunus slopes, impossible. Rather, the individual major sites were approached by branch roads which stemmed from the original Wetterau penetration road (ORLA 3-5, Map 7). It has already been noted, for example, how the early fortlet at Ockstädter Wald appears to be aligned upon a road leading from the rearward fort of Friedberg (ORLA 4, 64).

Strecke 4: East Taunus and the Wetterau

Topography

After crossing the Köppern valley, the line ascended the Taunus ridge once more. The frontier is placed predominantly on the outer slope of the ridge on its way to the Usa valley, guarded by the fort of Langenhain. From the Usa the frontier traversed rolling country, leaving higher peaks outside the line. Gradually the line ran into more and more open country, curving around to the east to follow the natural boundary of the fertile extent of the Wetterau. In this ever more open country, as we have seen (1.2; 3.1.2), large auxiliary forts had been placed at an early date. Until the deep valley of the Wetter crosses the frontier in the neighbourhood of Arnsburg,

the line is arranged in long, gentle curves, following the landscape. After the Wetter it is laid out in long, carefully surveyed dead-straight stretches; this difference appears to be associated with the change between the earliest and slightly later layouts of towers.

It is possible that the area of the Wetterau traversed by the frontier had been largely cleared of wood in antiquity. Although there has been insufficient palynological analysis to prove the point, it has been observed (Woolliscroft and Hoffmann 1991, 543) that the intervisibility of frontier towers with rearward forts suggests a clear landscape. In the southern part of Strecke 5, in contrast, where all sites are arranged along a line, a cleared track through woods may be implied.

The nature of the continuous barrier

The continuous barrier in this sector seems almost everywhere to have had a conventional history, the palisade being supplemented by the *Pfahlgraben* at some date in the second century. A pre-palisade barrier, known either as a *Flechtwerkzaun* or *Zaungrabchen*, makes an appearance in many places, usually running about 30m in front of the earliest, smaller timber towers (ORLA 4, 32-3). The later timber towers are accompanied by the later palisade and *Pfahl*, as seen at 4/14 (*ibid*. Taf 4.1). There are places, however, where the *Zaungrabchen* appears to correspond to the later-type timber towers. At 4/33 and 4/52 the *Zaun* is clearly cut by the palisade and *Pfahl*.

In a rocky area near Arnsburg, a mound or wall of dry stone was substituted for the earth mound: a ditch was still provided (*ibid*., 112-18; Taf 9). At *Kleinkastell* Hunnenkirchkof (4/28-30) the *Pfahl* cuts across the defences of the first timber fortlet, while the stone fortlet lies just to the rear

of, but not on the same alignment as the frontier earthwork (*ibid.* Taf 5.2).

In the area of Butzbach lie two successive lines of watchtowers. In the earlier scheme, as in earlier *Strecken*, the towers had been placed in close relation to the topography. In the superseding arrangement a more direct and arbitrary line was drawn, with the towers upon it more closely spaced. The earlier line continues north of Butzbach, where at 4/40* there were two successive timber towers. The successor tower on the later line (4/40) was of stone. Timber towers are not known at other tower sites on the later line here, suggesting that the rearward line was not abandoned until the period of stone tower building in the mid-second century (*ibid.*, 93-99).

Forts and minor installations

At some time in the early second century Inheiden was rebuilt with stone defences to an area of 1ha (RiH, 363); although its garrison is unknown it is considered to be a *numerus* fort on the basis of its size. Echzell was probably rebuilt in stone at this time (Schönberger 1985, 463). Altenstadt was also enlarged to *numerus*-size (timber 0.90ha). As on the two previous *Strecken*, by the mid-second century a notable series of fortlets supplemented the auxiliary sites here. The early establishment of a fortlet at Degerfeld on the frontier line and 0.75km from the auxiliary fort of Butzbach itself, was noted above (1.3); something similar was proposed for the fort at Ober-Florstadt. By the middle of the second century, fortlets had proliferated on this sector of the frontier (even where dating is inexact, the presence of a timber phase at a number of sites suggests that they must have been in existence by the middle of the second century).

No regularity can be discerned in the spacing of the *Kleinkastelle*; rather, individual installations appear to have

been sited where there was a local need. Kaisergrube, at 4/15, was situated where a route may have crossed the East Taunus ridge in antiquity; situated close by the *Kleinkastell* was also the tower on the Gaulskopf (4/16) which, unlike other towers on the frontier, may have acted as a long distance signal station. It possessed extensive views, as far as Feldberg in the Taunus and Echzell and Arnsburg in the Wetterau. A tower behind the frontier, 6.50km to the east, may have allowed communication with the fort at Friedberg, the one fort that remained in occupation behind the frontier (RiH, 238). Only 2.20km further north, the Eichkopf was surmounted by a fortlet of 0.25ha with extensive views which commanded both the southern side of the Usa valley, and the valley of a lesser stream, a tributary of the Usa, which crossed the frontier 1km south of the main river. The auxiliary fort of Langenhain was situated on the north side of the Usa penetration of the frontier.

The next fortlet to the north, Hunnenkirchhof, has no such obvious reason for its siting. It occurs 5.50km from Langenhain. This interval, wide for *Strecke* 4, may reflect the difficulty of passage across the mountains, the Hausberg and the Heidelbeerberg, which were left just outside the line of the frontier to the north of Langenhain.

The fort and fortlet at Butzbach were placed in a natural topographic break, where modern road and rail routes still pass into the Wetterau as ancient routes almost certainly did (ORLA 3-5 Map 7). Although it had started life only somewhat larger than a milecastle, at 0.10ha, Degerfeld was burnt between 160 and 175 and replaced in stone at a size of 0.30ha (Schönberger 1985, 492). After 3 and 4km respectively, occur the *Kleinkastelle* of Dicker Wald (4/40) and Holzheimer Unterwald (4/46-47). These are very small sites - milecastle sized - at 0.038 and 0.036ha. Only stone construction is known at these fortlets, which has prompted the suggestion (Baatz 1975, 133) that they may be of later origin than those frontier sites which originated in timber. Certainly there are no obvious

topographical reasons which would have led to the placing of detachments in these places, as there were at Butzbach. Behind the latest frontier line here, however, runs an earlier frontier layout, which includes, at 4/40* a small timber fortlet which is presumably a predecessor to Dicker Wald. The earlier fortlet, being adjacent to two successive timber towers is itself presumably an addition, perhaps a sign of a growing infiltration problem which eventually led to the resiting of the frontier line here. This suggests a pattern by which fortlets placed with obvious topographic reason are older, while fortlets placed without obvious reason may be later, a response to a growing perceived threat.

A further 3km to the north (of Holzheimer Unterwald) the place of tower 4/50 was taken by *Kleinkastell* Hainhaus bei Grüningen. The known fortlet is of stone, and larger than those just considered at 0.30ha. A timber predecessor is suggested by finds of early date (Baatz 1975, 135). Hainhaus fortlet seems to have been equipped with its own baths (ORLA, 107-8; Taf 7.6). It is highly probable that the frontier was crossed by at least two ancient routes in this vicinity, leading to the fertile Giessen basin, just outside the Wetterau, and beyond (ORLA 3-5, Map 7). Here the frontier beyond the Rhine reached its northernmost point. 5km to the east, a fortlet has been postulated in the Wetter valley, to fulfil a similar role in relation to Arnsburg as did the fortlet at Degerfeld in relation to Butzbach.

5.20km East of Arnsburg occur two fair sized (0.10ha) stone (as far as knowledge of them extends) *Kleinkastelle*, 2km apart, at Langsdorf and Feldheimer Wald. No obvious reasons suggest themselves for their exact siting; they may have been connected with the presence of pre-existing routes across the frontier in the gap between Arnsburg and the *numerus* fort at Inheiden. Beyond Inheiden, now 1ha, the *Kleinkastelle* were placed on the tops of small hills, and presumably date from the earliest arrangement of the frontier, which is laid out in straight

lines between these eminences. The sizes of the structures on the Wingertsberg and on the Massohl are unknown, but they are known to be of stone; that at Unter-Widdersheim is postulated on the strength of the excellent site, seemingly carefully accommodated by the frontier line.

At Haselhecke ((4/85) a large stone fortlet of 0.40ha replaced a timber tower (ORLA 4 Taf 10.7). There was clearly originally no *Kleinkastell* situated here. Like Hainhaus, Haselhecke possessed an external bath-house. The stone fortlet seems to have the same relationship to the adjacent (1.30km distant), rearward fort of Echzell as does the Degerfeld fortlet, similarly enlarged in stone in the second-century, to Butzbach.

Between Echzell and Marköbel, besides the fort of Ober-Florstadt, lay Altenstadt, which had already been enlarged to *numerus* size, perhaps under Hadrian. It was again enlarged in stone, possibly under Pius, to 1.50ha (Schönberger and Simon 1983). Fortlets lay between Echzell and Marköbel. Two, Lochberg (4/89) and Buchkopf (4/102) occur on the hill-tops so commonly used by *Kleinkastelle* in this sector of the frontier. As usual with these hill-top installations, they are small, the former being of about milecastle size, and Buchkopf tiny at 0.012ha. In between them a much larger fortlet, Staden (0.40ha) is situated at the point where the river Nidda crosses the frontier. Again, its proximity to Ober-Florstadt is reminiscent of the relationship between Degerfeld and Butzbach.

No obvious topographic factor explains the siting of the remaining small (0.036ha) fortlet at Stammheim, but it may have been intended to supervise the interval of broken but passable country between the Nidda and the crossing of the river Nidder, guarded by the successive installations at Altenstadt.

The general pattern throughout *Strecke* 4, comprising the easternmost part of the Taunus and the whole arc around the Wetterau as far as Marköbel, is for the fortlets to vary in

spacing and in individual size to suit particular circumstances. This is true both on the oldest (western) and slightly later (eastern) parts of *Strecke* 4. The average spacing of installations was less than on *Strecken* 2-3; it works out at less than 3km (including the auxiliary forts in the spacing) over the whole of *Strecke* 4, compared to an average spacing of 4.50km, including forts, in *Strecken* 2 and 3. There is also a notable tendency for larger fortlets to occur in *Strecke* 4. The clearest examples are of stone and therefore either upgraded or originated no earlier than the mid-second century (Degerfeld, 0.30ha; Staden, 0.40ha; Haselhecke, 0.40ha). Each occurs in the same close relationship to an auxiliary fort.

Evidence from watchtowers

On the older frontier line, by 4/39*, a ring-ditch surrounded a barrack-like building measuring 14 by 15m, which, on the basis of its finds, possibly continued in use longer than the neighbouring tower (ORLA 4, 97; Taf 7.1).

Additional, small stone buildings - *"Nebengebäude"* - lie in relation to timber towers at 4/5 and 4/8 (*ibid.* Taf 3.3-4). At 4/8 is also an irregularly shaped enclosure or fortlet which, however, is overlain by the *Pfahl*, so is probably of early date (*ibid.*, 58-9; Taf 3.4).

WP 4/18 (in the Vogeltal) has produced from its stone tower the mouthpiece from a bronze instrument supposed to have been used for signalling from tower to tower (*ibid.*, 75).

A barrack-like structure was attached to the timber tower at 4/105 (*ibid.* Taf 11.4).

Communications

The Roman military road system of the East Taunus and Wetterau (ORLA 3-5, 229-78; Map 7) shows that the frontier line itself did not develop in association with a pre-existing arterial road. The minor installations of the frontier were themselves only linked by minor roads or patrol tracks; occasional branch roads are known from the main road system. The main roads which linked the auxiliary forts were set back on average about 2km from the actual frontier line, as, of course, were so often the forts themselves. Even these roads are not well attested; the immediate impression is that routes fan out from the rearward military centre of Friedberg to the individual major frontier garrisons, without there being any real emphasis on major lateral communication along the frontier.

Strecke 5: **From Marköbel to the Main**

Topography

The origins of this line were treated above (1.2; 1.3). Being an artificial line drawn to link a pre-existing system in the Wetterau to the river Main, *Strecke* 5 took the most direct route through a landscape which offered no obvious feature for the frontier to follow. As far as Rückingen, where the Kinzig crossed the frontier, the line ran through open, rolling country, known to have been settled in pre-history (Baatz 1975, 143). Between the Kinzig and the Main the frontier crossed a flat, marshy and afforested expanse.

The nature of the continuous barrier

The sequence is quite orthodox in this sector. Between WP5/11 and WP 5/12 the frontier crosses a waterlogged area, the

Doppelbiersumpf. On either side of this, the *Pfahlgraben* ended with an inward turning terminal, and the interval was blocked with a timber fence construction. Similarly the service road behind the frontier gave way to a road of corduroy construction for the duration of the *Doppelbiersumpf* (ORLA 5, 164-9; Taf 15.1).

Gates and passages

A break occurred in the *Pfahlgraben*, and probably the palisade also, in front of 5/11 (*ibid.*, 164; Taf 15.1.B).

Forts and minor installations

The small installation at Rückingen, formerly a suggested outpost of Hanau-Kesselstadt, was now (upon the abandonment of the latter), probably between *c*110 and *c*125, enlarged to a fort of 2.50ha for *cohors III Dalmatarum* (Schönberger 1985, 463-64). By the mid-second century this sector was well provided with garrisons. The auxiliary forts of Marköbel, Rückingen and Gross-Krotzenburg were spaced with intervals only 7.50km and 8km respectively. Only 1.50km north of Rückingen a large fortlet (0.40ha) at Langendiebach, probably with both timber and stone phases, guarded an ancient east-west route across the frontier (RiH, 411). 4.75km south of Rückingen and 3.25km north of Gross-Krotzenburg was a further fortlet of 0.10ha, Neuwirthaus, held in the mid-Antonine period. This is also thought to have secured a crossing of the frontier (RiH, 413), the so-called '*Birkenhainer Strasse*' (ORLA 5, 170). The unusually formidable double ditch system surrounding this post was explained (*ibid.*) as being a product of the inaccessibility of the fortlet from the neighbouring auxiliary forts at certain times owing to the intervening marshes. On the face of it this would suggest that small isolated posts were expected to defend themselves against attack at certain times.

The average spacing of installations in *Strecke* 5, including the forts, is 3.90km; something between the 5km average of the Taunus and the close average spacing of 3km around the Wetterau. Again, no regularity can be discerned, with two of the three forts being situated by major river crossings (and therefore east-west routes) and the fortlets also thought to be related to routes.

Communications

It was argued above (1.3) that this sector of the frontier was built in advance of a pre-existing road between the Wetterau and the Main. If this was the case, the route does not seem to have continued in use after the construction of the outer frontier. The usual service road is known to accompany the frontier line here, but what is known of the system of major roads suggest that individual important frontier sites were served by branch roads from the interior (ORLA 3-5, 229-78; Map 7).

Strecke 6: The Main from Gross-Krotzenburg to Wörth

The location of this section of the frontier was determined solely by the course of the river Main. It was established above (1.5) that it was probably not until the Hadrianic period at the earliest that full-sized auxiliary forts became the standard type of installation along this part of the river. Once established, these forts alone delineated the frontier line; this state of affairs remained unchanged until the third century abandonment of the frontier beyond the Rhine. The only fortlet sized installations known seem to be early predecessors of the cohort forts.

Watchtowers - of stone only - have only been proved between Obernburg and Wörth (Schallmayer 1984, 58-59; ORLA 6, 8-9), and

although it has been suggested (Brogan 1935, 21-22; Baatz 1975, 148) that they may have extended along the whole length of the river frontier, the evidence of other river frontiers would suggest that these are probably not part of an early timber watchtower cordon but rather, merely isolated examples, or groups provided for a special local purpose. This would be supported by the very extensive views commanded by the more northerly of the towers near Obernburg (Schallmayer 1984, 58), suggesting that rather than belonging to the cordon class of watchtower, this was an isolated 'eye' for the fort, 2.50km to the north, with which it was intervisible. Neither the palisade nor the *Pfahlgraben* were provided anywhere along the river frontier.

The importance of the Main as a communications route may be indicated by the large number of stations for consular beneficiaries known along its length: at Obernburg, Stockstadt and Seligenstadt, as well as at Gross-Krotzenburg on the north bank of the Main in *Strecke* 5.

Strecke 10: The Odenwald

Topography

Given that its essential task was to draw a linear frontier between two pre-existing dispositions of military installations - on the Main and Neckar - the Odenwald frontier adapted itself closely to the topography of the country through which it ran. In its northern part, it traversed hilly and afforested country, and adopted the top of a long ridge of hills. This entailed little undulation, but many changes of direction, and on a number of occasions the line had to cross valleys running through the broken uplands.

South of Schlossau the frontier line ran out onto a gently rolling limestone plateau. From here on to the Neckar the

frontier had to cross a number of east-west flowing streams and rivers. There was no obvious natural line of demarcation for the frontier to follow: it was cutting arbitrarily across the rolling landscape, and accordingly from the beginning the line of watchtowers here was surveyed in dead straight stretches in contrast to the meandering nature of the northern part of the Odenwald frontier.

The nature of the continuous barrier

Although the palisade was built along the Odenwald sector, the *Pfahlgraben* had not been supplied when the move to the outer frontier took place. There is commonly evidence in the Odenwald for palisades as well as earthworks surrounding the earlier timber towers ORLA 10, 18). Such devices are not always present in the stone replacements, the palisade now presumably rendering them less necessary, but they do still occur, as around stone WP 10/30. Between Zwing fortlet and WP 10/34, for a distance of 112m, the place of the palisade is taken by a stone wall. Of dry sandstone block construction the wall is 0.90m wide, and calculated to have been 2-3m high (Schallmayer 1984, 99-100). Here numerous semicircular coping stones from the top of the wall have been discovered (*ibid.*, 32).

Gates and passages

Only at one point in the Odenwald sector is an interruption in the palisade known, where a break of 4.30m occurs 60m north of Schlossau fort (ORLA 10, 93). Traces of the road passing through the gap were noted. Schallmayer (1984, 32) says: 'Sicherlich gab es mehrere Limesdurchgänge, wohl zumeist in Nähe der Kastelle'.

Forts and minor installations

The origins, probably about c110, of the well known series of similarly designed *numerus* forts, and the two major auxiliary forts on the southern part of the Odenwald section were discussed above (1.5). The original timber defences of Hesselbach, the excavated type-site of Odenwald *numerus* forts, were rebuilt twice in stone before the abandonment of the Odenwald frontier in favour of the outer line (Baatz 1973, 13-21). It is assumed that the two southern cohort forts, Oberscheidental and Neckarburken-West, where only stone defences are known, are early-mid second century rebuildings of timber predecessors (Schönberger 1985, 467).

The Odenwald provides a most instructive example of the use of different types and sizes of unit and installation in differing landscapes. In the rough country to the north the famous series of *numeri*, apparently raised in Britain, sufficed. *Brittones* are actually attested at the forts of Schlossau (CIL 13.6502) and Neckarburken-Ost, the fortlet at Trienz (CIL 13.6490) and WPs 10/19, 10/22, 10/33 and 10/35. However, inscriptions from Walldürn (CIL 13.6592) and Öhringen (CIL 13.6542 and 6543) on the outer frontier record *Brittones* who had presumably transferred from *numerus* forts on the old Odenwald line.

Interspersed with the *numerus* forts are three *Kleinkastelle*. These fortlets are all of very small size - no larger than British milecastles - and each is clearly sited with a view to local conditions; Windlücke (0.017ha) probably controlled an east-west track through a depression between hills; Zwing (0.035ha) and Seitzenbuche (0.04ha) both guarded small passes through the ridge. The pass at Seitzenbuche provides the most direct route connecting the Main and the Neckar valleys. All of these fortlets were eventually built in stone.
On the plateau of the southern part of *Strecke* 10 there is a quite different use of *Kleinkastelle*. Again there is no

regularity of spacing. South of Oberscheidental *Kleinkastell* Robern (0.04ha) was placed at a small pass which would have allowed an approach to the frontier. After a very short interval of 2.75km occurs the large fortlet of Trienz (0.20ha) at an important valley crossing. This installation was built by the *numerus Brittonum Elantiensium* from nearby Neckarburken-Ost (CIL 13.6490).

It has been noted (above, 3.3; Baatz 1975, 153) that in the northern Odenwald the proportionately light garrisoning of the sector is also reflected in a wider spacing of the watchtowers than that seen in the Taunus and Wetterau. The timber towers had characteristic foundations of interlaced stone and timber, without mortar bonding, a technique seen in places in *Strecke* 3. The Odenwald towers were replaced in stone before the frontier was advanced (4.4 above), and in most cases there had not been time for a sequence of more than one timber tower to occur before the stone reconstruction of the 140s.

For all of the similarities in the terrain and the intensity of garrisoning between the northern Odenwald and the Taunus sector, it will be noted that compared to the Taunus in the mid-second century the *numerus* forts of the Odenwald are very closely spaced, at an average of only 5-6km. The cohort forts of the southern Odenwald, on the other hand, display a wideness of spacing which far exceeds anything seen in the comparable fertile and negotiable tracts of the Wetterau frontier.

Communications

As elsewhere, both a service track for the minor installations and a more direct route linking the forts have been detected. The service track - *'Begleitweg'* or *'Limesweg'* - only properly built of stone here and there, runs for the most part immediately behind the palisade. At a varying distance from this track runs a better built road - *'Grenzstrasse'* - which

joins the individual forts by the shortest possible route. In places it appears to have taken over the role of the service track. Approaching the Trienz valley the frontier road diverges from the frontier line south of Robern and skirts the valley, while the palisade and service track continue in a dead-straight line and have to cross the winding valley twice (ORLA 10, 31-2; Schallmayer 1984, 33; Baatz 1975, 170).

Strecke 11: The Neckar

The course of the linear arrangement of installations along the river Neckar whose origins, probably in the 90s, were considered above (1.4) was determined solely by the river itself. A certain amount of consolidation work at the major fort sites is discernible, such as the enlargement and rebuilding of Stuttgart Bad-Canstatt in stone; the rearward fort of Gross-Gerau was probably given up *c*120-*c*130 (Schönberger 1985, 393). The rearward fort of Heidelberg-Neuenheim was not, as might have been expected, given up now; it may have continued to have a special role in the mid-second century. Planck (1988, 266-67) dates to this period the rebuilding in stone of the remainder of the forts on the Neckar: Benningen, Walheim, Heilbronn-Böckingen and Wimpfen.

This arrangement of forts was in use until the mid-second century advance to the outer frontier line. We are dealing, then, with a system with a life of some 50-70 years. There is no reason to believe that these forts formed a linear frontier in the sense of system to impede movement across the river: rather their role was one of the protection and control of a communication route running along the Neckar. As was noted above (1.4) the road between the forts could run on either side of the river. The river was easily crossed at several points by fords. No watchtower system developed. Good land suitable for settlement lay on either side, and an Imperial estate is

known to have existed on the east side. One notable characteristic of the Neckar forts is the frequently attested presence of *beneficiarii consulares*. When the forts were abandoned in favour of those on the outer line in the mid-second century, extensive civil settlements continued to flourish at some of the old fort sites, still accommodating the *stationes* of *beneficarii*.

Strecken 7 and 8 as far as Osterburken: The northern part of the outer frontier

Topography

From Miltenberg on the Main the frontier (advanced from the northern Odenwald line) ran in a series of long, straight, surveyed alignments across a rolling, rather barren upland plateau, today heavily afforested. It left behind it, to the west, a series of deep north-south running valleys and a large area of the same relatively impenetrable terrain that the predecessor frontier in the Odenwald had traversed.

The nature of the continuous barrier

In *Strecke* 7 the system possessed the palisade and stone watchtowers from the beginning, and henceforth enjoyed the usual sequence. However, between Miltenberg and Walldürn, although the palisade had apparently everywhere been supplied, there is a notable series of gaps in the *Pfahlgraben*, often up to 200-300m in length; elsewhere the structure was unfinished, the ditch not fully dug or the rampart incomplete (ORLA 7-9, 29-30). In general the *Pfahl* in this sector was 'selten so tief und so sauber ausgehoben wie weiter südlich (*ibid.*, 29). It was noted that these variations were in part associated with areas of hard rock which had to be traversed.

In the northern part of *Strecke* 8, between WP 8/18 and WP 8/19, in the area of Bofsheim, the final phase of the continuous frontier was represented by a stone wall between 1.20 and 1.85m wide (*ibid.*, 31-3). In structural sequence this was shown to be later than the abandoned *Pfahlgraben*. The wall was not physically connected to the pre-existing watchtowers, as in Raetia, but rather ran in front of them, and was interrupted in front of each tower, perhaps to allow passage through (Planck and Beck 1987, 49). Still to the north of Osterburken the stone frontier wall has been traced as a foundation north of WP8/26, ending just south of that tower. The wall ran some 20m behind the *Pfahlgraben*. At this point the wall abutted the sides of the stone tower, allowing it to project. 90m north of 8/26 a trapezoidal stone foundation projected from the wall at a point of easy approach to the frontier; this has been described as an artillery position. It overlay the earthworks of the *Pfahlgraben* (ORLA 7-9, 30; Taf 8.5).

Forts and minor installations

The spacing of forts and fortlets in *Strecke* 7 and the northern part of *Strecke* 8 was wide when compared to that which had prevailed in the northern Odenwald and the *Strecken* north of the Main considered above. Moving south from the two forts at Miltenberg, where both a cohort (Miltenberg-Altstadt) and a *numerus* (Miltenberg-Ost) were quartered, there was an interval of 17.25km before the next, *numerus*-sized fort at Walldürn. This interval was broken, after 10km, by a fortlet at Haselburg (WP 7/24: the known structure stone, 0.20ha). 3.60-4km south of Walldürn, at WP 7/48, occurs a sequence of two stone fortlets, the better situated, Hönehaus (stone, 0.20ha) probably replacing a short-lived *Kleinkastell* An der Altheimer Strasse (also stone, 0.20ha). Hönehaus was situated on the Rehberg, and possessed extensive views to north and south over the broken landscape. The famous dead-straight alignment of the outer frontier had begun just north of here, so it is

probable that the eminence of the Rehberg served as one of the surveying points for the new frontier (Planck and Beck 1987, 49). 3.10km further on, now in *Strecke* 8, a fortlet at Rinschein (WP 8/7: stone 0.20ha) occurred, 10km before the fort at Osterburken.

Between Miltenberg and Osterburken, then, the spacing of installations, including both forts and fortlets, is on average 6.87km, which is considerably wider than on those parts of the frontier running around the Taunus-Wetterau. It is possible, of course, that further sites await discovery in this sector (Baatz 1975, 187). Also of note is the special type of fortlet employed in *Strecke* 7 and the northern part of *Strecke* 8. The four known examples are large fortlets, at 0.20ha each.

Evidence from watchtowers

Nearby buildings associated with towers have been noted at 7/6 (ORLA 7-9 Taf 3.1); 7/13 (*ibid.* Taf 3.5); and 7/31 (Planck and Beck 1987, 43).

The remainder of *Strecke* 8 and *Strecke* 9: The central and southern parts of the outer frontier

Topography

The section from Osterburken, via Jagsthausen to Öhringen, runs over an undulating plateau of limestone, cut through by rivers and streams, particularly, in the region of Osterburken, the Tauber valley, and further south, between Jagsthausen and Öhringen, the Jagst and Kocher. These valleys are the areas of richest modern land use; they were settled, and formed important routes, in antiquity (Baatz 1975, 49, Abb 29). South of Öhringen begins the Mainhardt forest and the Keuper steppe

lands of the south. The Keuper is not conducive to agriculture, and it is probable that afforestation was denser here, and settlement correspondingly sparse, in antiquity. The same situation prevailed for a considerable distance beyond the frontier. The same can probably be said of the last part of the dead straight stretch of the outer frontier, where it runs over the Lias high-plateau of the Mainhardt, Murrhardt and Welzheim forests. The plateau here is deeply cut across by cavernous river-courses, but the frontier runs arbitrarily across these without deviating at all in respect of the topography.

The nature of the continuous barrier

The usual outer-frontier sequence of stone towers and palisade, supplemented by the *Pfahlgraben*, prevailed here; as in the previous sector, there was an exceptional late development. The stone wall which occurs north of Osterburken was noted in the previous section. Between Osterburken and the neighbourhood of Jagsthausen the stone wall, with some interruptions, continued to run parallel to, and some 19m behind, the earlier *Pfahlgraben*. The wall varies in thickness between 0.75m and 1.20m, and rarely abuts the walls of the pre-existing stone towers (ORLA 7-9, 31-3). Rather, it leaves a gap on either side of the tower, although sometimes of only 0.20-0.50m. Further foundations of stone outworks (like the feature interpreted as an artillery platform described north of Osterburken), projecting from the wall to the *Pfahlgraben*, and measuring up to 9 by 13.50m, are known along this sector. A total of six are known (*ibid.*, 32).

A six-sided tower of exceptional size occurs at 9/51; it has been thought that owing to its extensive view, up to 45km along the frontier to the north, it must have served some special signalling function (*ibid.*, 40). Immediately south of this the *Pfahlgraben*, with accompanying palisade, made its only

diversion from the dead-straight outer line, in order to avoid a precipitous ravine, through which the palisade had originally run. Here is a further indicator that the palisade was retained in use with the *Pfahlgraben* (*ibid.* Taf 15.5).

At 9/71, slightly beyond the frontier lay a further mound and ditch, of unknown purpose. The peculiar concentration of towers on the 'Linderst' - 9/97 and 9/98 are separated by only 100m, and 9/98 and 9/99 by only 80m - 'wohl in Zusammenhang mit der Überwachung des Tales und der direkten Verbindung zum Kastell Murrhardt zu sehen' (Planck and Beck 1987, 82). At 6m by 6.50m 9/99 also forms the largest tower on the outer frontier (ORLA 7-9, 176).

Gates and Passages

The *Pfahl*, where this feature remained the principal barrier and was not replaced by a stone wall, is not known to have been interrupted at stone towers (in the manner of *Strecke* 2), except at 9/116, where a large tower, 9/116 (6m by 6m), is reckoned to be the southern survey point for the layout of the straight outer line. Here, when the *Pfahlgraben* was supplied, there was originally an earth causeway opposite the tower. Later, the ditch was dug through, and the mound terminated to the north and south of the tower. After destruction in the first half of the third century, the tower was crudely restored and this time the mound built up to its north and south sides (Planck and Beck 1987, 88).

At 8/44 excavation by P F Mauser in 1970 revealed a sequence of two stone towers. The earlier, exceptionally large, was surrounded by a ditch from which the late stone frontier wall has been laid out to north and south. 12m south of the first tower there occurred a gap of some 7-8m in the frontier wall; immediately to the east of the gap there stood a stone tower of normal size (Planck and Beck 1987, 59). This has been

interpreted as a passage through the frontier, and associated with concentrations of native population beyond this part of the outer-line (Schnurbein 1992, 74). But the association of this opening with a stone tower gives it a close resemblance to the numerous openings in *Strecke* 1 and 2 which may better be interpreted as service passages.

Forts and minor installations

In this more southerly stretch of the dead-straight outer frontier, troop provision was quite different from the successor to the northern Odenwald last described. Between Osterburken and Welzheim the emphasis was more on the use of normal cohort forts rather than *numeri*, and these were interspersed with fortlets of small, milecastle size, in contrast to the large fortlet type prevailing in *Strecke* 7 and the northern part of *Strecke* 8. Spacing was still wide, at an average of 6.21km, but this seems to have been compensated for by a correspondingly close spacing of the watchtowers.

An interval of 13km separates the forts at Osterburken and Jagsthausen, with no known intervening fortlets. The fort at Osterburken exhibits a famous double arrangement, dating from the reign of Commodus, traditionally (but with no firm evidence) for the accommodation of a *numerus* alongside the cohort based in the main fort. The double fort overlooks the wide, shallow Kirnau valley. This route led from the Tauber valley, a populous communication route and settlement area beyond the frontier.

A major river valley - the Kessach - crosses the frontier 8km south of Osterburken and 5km before the Jagst, but it is guarded by no known fort or fortlet. Presumably a small site could await discovery here, but hardly a full-sized fort. The cohort fort at Jagsthausen seems situated to block the winding valley of the Jagst, which the straight frontier line crosses

800m to the northeast of the fort. After a further 3.40km, at WP9/11-12, the frontier is crossed by the major valley of the Kocher. Here, rather surprisingly, there was no cohort fort; however, the remains of a *Kleinkastell* have been discovered beneath the church in the village of Sindringen, commanding the valley 650m behind the frontier line. It is thought to have been small, of Rötelsee type (Planck and Beck 1987, 64).

5.75km south of *Kleinkastell* Sindringen occurred the fort of Westernbach. At only 1ha in size, and possessing only two gates, it is considered as a possible *numerus* type; its date of origin is uncertain, and one as late as the third century has been postulated, as has the possibility that the fort formed accommodation for detachments outposted from Öhringen (Schönberger 1985, 481). Only 3.35km further on to the south lies the major double fort complex at Öhringen, at point where modern rail and road lines still cross the frontier in a well-settled area. Öhringen itself was obviously situated in relation to the natural communication route provided by the valley of the Ohrn, which probably accommodated an old road coming in from the Hohenlohe plain (Schönberger 1969, 168-89). Öhringen itself, acquired a flourishing civil settlement: *vicus Aurelianus*, a *civitas* capital. Here was one of the few points on the *Strecken* we are considering where it is possible to imagine a constant traffic and trade across the frontier: a guild of traders - *collegium convenarum* - is attested.

There is no simple pattern, then, by which garrison forts are simply or regularly situated in river valleys crossing the frontier. This is the case with Jagsthausen, but not with the Kessach to the north and the Kocher to the south. Only a fortlet is known, supervising the latter valley. On closer scrutiny it can be seen that there are two different types of valley crossing the outer frontier in this sector. There are the wide, natural communication corridors and settlement areas, such as the Tauber valley and the valley of the Ohrn, and the broad, flat topped ridge running from Welzheim to the north.

As might be expected, these corridors have attracted major military complexes consisting of multiple forts, at Osterburken and Öhringen. Between these two, the valleys of the Kessach, Jagst and Kocher are rather different in character; they are cavernous and meandering in comparison to the broad corridors of the Tauber and Ohrn. The distribution and types of the Roman military sites would suggest that the cavernous river courses were more densely afforested and less easily passable than today; one cohort on the central of these river courses, at Jagsthausen, was perhaps considered sufficient garrison (in conjunction with fortlet(s) and towers) to supervise all three.

If the central three river courses were considered to present less of a threat of unauthorised movement, this would also help to explain why the possible *numerus* fort at Westernbach was situated not in the Kocher valley, but much further to the south, only 3.25km from Öhringen. The upland plateau which the frontier crosses on the way to Öhringen would be a natural bypass route for anyone wishing to cross the frontier but avoid the intensively garrisoned passage by Öhringen. In contrast, the Kocher valley was perhaps a much less inviting corridor of approach than it might appear to be on a modern map.

To the south of Öhringen, where the frontier transects the afforested uplands of the Mainhardt and Murrhardt areas, the country was again largely intractable; natural corridors were provided by river valleys which were blocked by forts at Mainhardt, 13.25km from Öhringen, and Murrhardt, 11.50km further on. 11.50km from Murrhardt lay the complex of forts at Welzheim. Here the use of small fortlets is more evident. One lay c300m east of Mainhardt fort, 30m behind and oriented upon the frontier line. This fortlet, Mainhardt-East (0.054ha), excavated in 1975, has been taken, on the basis of its finds, to belong late in the history of the outer frontier, while being recognizably of the same type as Rötelsee and others in this sector (RiBW, 439). No regularity can be discerned in their distribution; rather, as with the forts themselves,

topographical features seem to have decided their siting. 3km south of Mainhardt, Hankertsmühle was situated to control the small valley of the river Rot. 6km south of Murrhardt was *Kleinkastell* Ebnisee; this, like Rötelsee, 4.45km further on and only 1.50km from Welzheim, lies on an elevated, easily negotiable and fertile plateau along which the frontier ran between Murrhardt and Welzheim. Just as the *numerus* fort at Westernbach may have been placed to intercept movement across the tractable plateau north of Öhringen, so these fortlets may have fulfilled the same role to the north of Welzheim.

The pattern seems to be one of units based to block the obvious routes of penetration, with a broken country in between which received very sparse garrisoning, with very few fortlets. On the outer frontier the towers were more closely spaced than in the Wetterau; and, as in the case of the remote Taunus, this might be a reflection of the problems experienced by very small detachments operating in broken country. Fortlets were occasionally placed where small rivers crossed the frontier, or to provide extra supervision on the areas of flat plateau where major garrison sites such as Öhringen and Welzheim could easily have been by-passed. In general, however, the average spacing of fortlets and forts between Osterburken and Welzheim was very wide. At 6.21km the average interval, while not as wide as on the most northern section of the outer frontier, is considerably wider than in the Wetterau, and still wider than the 4.50 average of *Strecken* 2-3. This is because there was less use of small forts and fortlets; here the military concentrations were embodied in the cohorts placed where infiltration or movement was expected; it was not expected in the upland tracts between the valleys and plateaux. In the Taunus, in contrast, points of infiltration must have been less predictable, and therefore the small garrison was more evenly spread along the system.

Evidence from watchtowers

The quantity of pottery found in 1971 at 9/71 and 9/77 has been taken (Planck and Beck 1987, 78-9) to show that the towers continued to be supplied, and therefore continued in occupation, for a long time.

***Strecke* 12: The junction of the Upper German and Raetian outer frontiers, and the Raetian frontier as far as Halheim**

Topography

Between Welzheim and Lorch the dead straight outer frontier gives way to a sinuous course which follows the topography of the valleys and ridges before turning just east of Lorch to run in long straight lengths north of the Rems. Here, as we have seen (4.5 above), the frontier line all the way to the Kocher, just west of Rainau-Buch, did not originate until the mid-Antonine period; the length between Unterböbingen and Lorch was probably the latest part of all. The dead straight lengths in which it was laid out are perhaps a reflection of its late origins. Certainly the course of the frontier seems to pay very little attention to the landscape; although it seems to have been decided to keep the line on the north side of the Rems, otherwise its course seems arbitrary and takes it down into three valley bottoms, including, at one point, that of the Rems itself. An explanation for this - that the Rems at this point originally took over as the frontier line - was offered above (4.5). No attempt is made to follow the topography of the crest of the north side of the Rems valley; outlook to the north must frequently have been poor. The impression gained is that the line was arbitrarily driven to close the gap between Lorch and the original termination of the frontier near 12/45, and that any sort of tactical command of the topography was not considered necessary.

Leaving the Rems, the frontier continues in long straight stretches in a northeasterly direction; at 12/54, just north of Essingen, it swings sharply to the northeast and begins a straight course which takes it all the way to the presumed early Antonine termination of the frontier at the Kocher, near Buch. Baatz (1975, 209-10) has suggested that in this part the line was dictated by the geological division between Lias and Keuper, beyond which the land is poor and afforested, and little pre-Roman settlement known. The fertile Vorland of the Alb, in contrast, was enclosed by the frontier. While this may be true in a general sense, it is hard to see the frontier, in its dead straight layout, following with exactitude such a natural change, and it is important to remember that its general course will have been determined by the location of the pre-existing military arrangements to the north of the Nördlinger Ries, and the need to connect them with the forts advanced into the Alb Vorland.

From the Kocher northeastwards, the remainder of *Strecke* 12 generally follows a dead straight course over the gently rolling Lias plateau. There are deviations around the forts at Buch and Halheim which show that the watchtower line post-dates the establishment of these sites. At Freihof, northeast of Halheim, the frontier reaches the edge of the Lias-plateau, and climbs onto the more pronounced Keuper uplands, aiming directly for the prominent landmark of the Hesselberg.

The nature of the continuous barrier

The *Pfalhgraben* was supplied only as far as Lorch; yet the Raetian Wall did not begin until the presumed border of the provinces of Upper Germany and Raetia at the Rotenbach, between 12/22 and 12/23. West of the Rotenbach the *Pfahl* was never provided and the palisade stood alone as the sole continuous barrier on this last part of the Upper German frontier. Despite the range of different dates at which various parts of

the Raetian frontier in *Strecke* 12 originated, a palisade in some form was everywhere supplied before the building of the Raetian Wall; evidence for the dating of various parts of the palisade was discussed above (4.5).

Gates and Passages

No gateways through the palisade or Wall are known in *Strecke* 12, with the exception of the suggested frontier gate at Dalkingen (12/81). Here five principal phases of activity were elucidated in excavations in 1973-74 (Planck 1983); the first, a *Zaun*, or fence, of individually set posts, about 1m apart and displaying two phases; associated with them was a timber watchtower. Presumably this early activity is associated with the first layout of a linear system here after the building of Buch and Halheim by the early Antonine period. The second phase saw the installation of the major palisade in its continuous trench; it is tempting to associate this activity with the completion of the Raetian frontier in the 160s, at which date dendrochronology has shown such a palisade to have been supplied in the nearby Jagsttal. Now for the first time a timber structure, 13.30m by 14.50m, was attached to the rear of the palisade. Phase 3 saw a free standing stone tower built to the east of the timber structure; and then, in Phase 4A, the Raetian Wall was brought up to abut the front corners of the tower. As part of the same building operation, a stone building 12.60m by 9.30m incorporated the tower and replaced the former timber structure. The entrance into the south, inner site was found, together with the impression of a threshold stone that had lain in the entrance leading out to the north. In a final phase, 4B, dated to the early third century, the structure received an elaborate facade which, however, would only have been visible from within the frontier.

Although the excavator saw the successive structures at Dalkingen as an impressive frontier-gate, elaborately decorated

at the time of Caracalla's expedition across the Raetian frontier, some other German scholars (Baatz, pers. comm.) have doubted this interpretation. They prefer to see the Dalkingen structure as a fortlet attached to the running barrier in the manner of a British milecastle. The narrowness of the entrance to the north is stressed, and the suggestion made that its elaborate decoration may indicate its conversion into a temple, in the same manner as WP 10/37.

Forts and Minor installations

Strecke 12 displays one of the lowest proportional densities of garrisoning on the whole of the Upper German and Raetian frontier. The average spacing of the known installations - and the frontier line does not pass through areas so affected by modern building or agriculture as to lead to the suspicion that many fortlets have been lost or await discovery - is some 8.50km, and that includes the short interval between Lorch and the cluster of installations near Schirenhof at the beginning of the Raetian Wall; in that part of *Strecke* 12 east of the beginning of the Wall the average is nearer 9.20km (not counting the distances between the clustered installations of Kleindeinbach, Freimühle and Schirenhof).

Fortlets, then, are hardly at all used in this sector; there can, therefore, be no question here of them being regularly spaced, and the few examples known can be seen to have been situated in relation to local needs and circumstances. 200m west of the beginning of the Raetian Wall, taking the place of 12/22, *Kleinkastell* Kleindeinbach (stone, 0.06ha) sat upon a flat-topped spur, overlooking the Rotenbach. Very near by, *Kleinkastell* Freimühle (stone, 0.3ha) was also situated to overlook the Rotenbach, but the situation of this larger fortlet is otherwise puzzling. The frontier line, 0.75km to the north, runs on a level 100m higher than that of the fortlet, blocking any outlook over the frontier or to the

north. It has been suggested (ORLA 12, 45) that this rearward fortlet may have supervised a road running through the Rems valley, or (Planck and Beck 1987, 108) that the fortlet may have had an independent role related to the provincial boundary between Upper Germany and Reatia, which is commonly supposed to have lain on the Rotenbach, where the Raetian Wall begins.

6km beyond the fort at Schirenhof, at 12/33, lay the fortlet of Hintere Orthalde (stone, 0.022ha). This very small installation was situated to overlook the valley of the Sulzbach, today full of industrial plant, which runs northeast-southwest across the frontier into what is now Schwäbisch Gmund. It was situated immediately behind the continuous frontier. The fortlet is one of a series compared by Schleiermacher (1962) to the *centenaria* of North Africa, and supposed to be a late addition.

This is the last known fortlet in *Strecke* 12. After a 7km interval follows the fort at Unterböbingen. The garrison of this place in the second or third centuries is unknown, but at 2ha the fort would have been large enough to accommodate a whole auxiliary unit. It sits at a nodal point of communication corridors, still used by modern railways; this fort would also have been well situated to guard the original termination of the linear frontier at the Rems (proposed above).

After another 10km comes Aalen; after 10km Buch; and finally, after an interval of 13km, Halheim. The great *ala milliaria* fort of Aalen (6ha), and Rainau-Buch (stone, 2.10ha) both lie back from the frontier line, some 4km distance in the case of Aalen, and about 1.25km in the case of Buch; each is obviously situated with regard to a major river valley which crosses the frontier; the Kocher (Aalen) and the Jagst (Buch). The placing of Aalen behind the frontier at the intersection of a north-south route and the natural corridor of communication, the extension of the Rems valley, which runs behind and

parallel to the frontier, between it and the mountainous Schwabian Alb, shows that the potential mobility of *ala II Flavia*, and the need to guard the roads running behind the frontier, were borne in mind as much as any policing role on the frontier line itself. Buch, although placed in the Jagsttal, presumably predated the watchtower system here, which deviates to pass around the fort; we may suspect that, like Aalen, Buch was more concerned with the protection of roads behind the later frontier line. Halheim, filling a long interval of 26km between Buch and Ruffenhofen, was very small at only 0.67ha, and only possessed two gates (ORLB 67A, Tafel 1); although the fort is described as *numerus*-sized (Planck and Beck 1987; 149), its garrison is unknown. Southern (1989, 123-4) has shown that there is no reason to believe it actually was a *numerus*. Like Buch, Halheim presumably predated the frontier line, which deviates to pass around it, and therefore its siting may be more concerned with the earliest garrisoning (in the early Antonine period?) of and the road running through the area between Ruffenhofen and the Kocher, and may not indicate any local peculiarity or weakness of the later continuous frontier here.

Evidence from watchtowers

Excavation at Mahdholz (12/77) in 1969, besides revealing a sequence consisting of a typically (for this sector) large stone tower (6.50 by 5.50m) followed by a stone (5m by 5m) successor which became incorporated into the Raetian Wall, also produced evidence to show that the length of occupation had been considerable, and that the wall and tower here had been decorated with red painted plaster (Planck and Beck 1987, 140).

At 12/13, instead of a normal tower, occurred a building 10.50m square, described as a *Feldwache*, or very small fortlet, in ORL (A 12, 19; 34-5).

Communications

'Nach dem Begleitweg, der zur Verbindung der Wachtposten unter sich und als Patrouillenweg entlang dem Limes geführt haben muss, ist nicht gesucht worden. Spuren von ihm sind nicht bekannt' (ORLA 12, 20).

Despite the failure to find much evidence for the frontier patrol-track or service road, there is evidence for arterial roads linking the area of the Nördlinger Ries with the area of the Upper Neckar. As suggested above, the forts at Aalen and Buch may have been closely associated with one such road, which ran from Aalen, via Böbingen, and along the south side of the Rems valley, usually staying at least 1km behind the watchtower line, converging with it near 12/14 and Lorch, and then passing straight on to join the Upper Neckar (RiBW, 147). Aalen lay at the point where two roads , one from the northeast and one from the south met and became the single Neckar-bound road under discussion. The road coming down from the northeast, via Buch, was in fact a continuation of the *'Römerstrasse'*, the original penetration road north of the Nördlinger Ries which continued in use as an important route some distance behind the Raetian frontier in *Strecken* 13 and 14.

It will be clear then, that the original purpose of the forts in the eastern part of this sector (Ruffenhofen, Buch, Halheim) was to safeguard a road system; the location of the later linear frontier was determined by the forts, and not vice versa. Even though a linear frontier was provided immediately - or almost immediately - upon the provision of forward forts further west, those forts still seem intimately linked with the road system rather than the linear frontier to the north.

Strecke 13: Ruffenhofen to Gunzenhausen

Topography

From Halheim as far as WP 13/22-23, north of Ruffenhofen, as suggested above, the frontier line was probably a late addition, originating, with Buch and Halheim, between c120 and c140. As far as 13/10 its course was aligned exactly upon the summit of the Hesselberg. At 13/10, the frontier line swung north to enclose the Hesselberg and to join onto the previously established frontier line east of 13/22-23.

Here we enter upon the earliest sectors of the Raetian frontier to receive a system of watchtowers and, at some stage, a palisade. It was suggested above (4.3.1) that its date of origin would be indicated by the foundation date of Dambach, and thus may have occurred as early as c110-c120. Its exact location was presumably determined by the forts - Ellingen, Theilenhofen, Gunzenhausen - pushed forward, perhaps in the early Trajanic period, to secure entrances into the Nördlinger Ries.

In either case, rather than being determined by exact local topography, its siting was a continuation of an existing policy being carried out to secure the Ries by placing sites north of the penetration road from the Danube. The one local factor which may have influenced the course of the frontier was the evident decision to enclose the prominent Hesselberg mountain within it. Even this has been interpreted by Baatz (1975, 223) rather as a drive to enclose as much as possible of the fertile Vorland of the Alb within the protection of the frontier. The frontier line in *Strecke* 13 thus has no natural feature to follow, and cuts straight across the gently rolling country on the northern edge of the *Vorland*.

The nature of the continuous barrier

The palisade in this sector, which may have dated from the Trajanic or Hadrianic period, was presumably in a state of decay by the mid-second century, for some time before the building of the stone Raetian Wall it was replaced in much of the sector by a timber *Flechtwerkzaun* (ORLA 13, 13-14), itself sometimes structurally later than the stone replacements of the original timber towers. The stone towers of *Strecke* 13 are generally of a larger size than those found on the Upper German frontier, sometimes measuring as much as 6m by 7m (*ibid.*, 14-15); the earlier timber towers - the so-called *Blockhaüser* - had also been of large size and surrounded by distinctive square ditches (*ibid.*, 11-12; Taf 2; 3; 5; 7).

Gates and Passages

At 13/5 there were possible openings through the stone wall on either side of the tower, of 2m and 2.50m respectively (ORLA 13, 23; Taf 2). At 13/22, where the frontier line kinks towards the east to pass around the Hesselberg, two gaps were left in the Raetian Wall, of 1.70m and 2.30m wide respectively, 7m apart. One of the gaps was formed by stopping the Raetian Wall short of the east side of the stone tower (*ibid.*, 35; Taf 3). At 13/43 a gap was found in both palisade and Raetian Wall. The opening in the palisade was 2.30m wide; that in the Raetian Wall 2.85m wide, again formed simply by not continuing the Wall all the way to abut the east side of the tower. It is also possible that here there was an opening in the *Flechtwerkzaun*; this barrier was not continuously traced. At this opening there was evidence for bronze lettering from a gate inscription, and a timber door (*ibid.*, 47; Taf 6). 33m east of stone WP 13/50 there occurred a gate through the Raetian Wall: a gap 8.50m wide with an inward projecting extension of the Wall on either side, and evidence for a road (*ibid.*, 54; Taf 7). At WP 13/54, just by the fort of

Gunzenhausen, and where the Altmühl crosses the frontier, an opening over 7m wide occurred in the palisade. It was occupied by some poorly understood remains which may have represented the structure of a timber gate (*ibid.*, 47-8; Taf 2.5). The Raetian Wall was almost certainly crossed here too, but the evidence is confused by the fact that it was interrupted in any case to make way for the river Altmühl. The *Reichs-Limeskommission* believed the Wall to have been interrupted here for 50m (*ibid.*, 46). But Ulbert and Fischer (1983, 68-9) prefer to see the Wall resuming after a gap of 10m, then running down to the river on timber piling. The paved road running immediately behind the Raetian Wall also formed a ford across the Altmühl (*ibid.*, 46).

Forts and minor installations

Strecke 13 contains not a single known fortlet. Ruffenhofen, base of an unknown auxiliary garrison, was followed by an interval of 11.50km along the frontier, or 9.50km as the crow flies, before the next fort site, Dambach; here the earliest known small fort (stone, 0.97ha) was enlarged at some time in the second century into a cohort sized fort of 2.20ha. This activity may possibly be dated by a Commodan inscription (CIL 3.11921), but could just as easily have occurred earlier (Ulbert and Fischer 1983, 64). It is notable that neither of these forts is situated at an obvious incursion point on the linear frontier. This is even the case with Dambach, which was evidently sited after the choice of the frontier line.

Although a minor depression crosses the frontier at this point, it hardly represents the natural corridors so often surveyed by installations elsewhere on the Upper German and Raetian systems. 4.75km from Dambach, but lying over 6km behind the frontier line, the fort at Gnotzheim (2.20ha) continued in occupation throughout our period. By 144 it had become the base of *cohors III Thracum*, probably still its garrison in the

third century (by which time a *numerus* may have shared the fort: Schönberger 1985, 472). The concerns of the garrison of Gnotzheim presumably had as much to do with the intersection of east-west and north-south routes upon which it sat, as with surveillance of the frontier line.

Two aspects therefore characterise the distribution of garrison posts in *Strecke* 13: the absence of posts smaller than full cohort size, and the almost general failure (Dambach, perhaps not increased to full cohort size until the later second century, is the exception) of posts of any size greater than the watchtowers to appear upon the frontier line itself. It is clear that much of the role of the cohort forts continued to be concentrated upon the road system to the rear of the frontier. On the frontier the towers were widely spaced and often of unusually large size: this suggests that on the line itself very small detachments of frontier-police troops could safely operate for long periods away from larger troop concentrations, and without near recourse to any installation larger than the characteristic *'Blockhaus'* towers of this sector.

The lower order of infiltration or threat foreseen on this part of the Raetian frontier is well illustrated by the average spacing between larger installations on or near the frontier itself. Omitting Gnotzheim, over 6km distant, the average spacing between the forts of Halheim, Ruffenhofen, Dambach and Gunzenhausen is some 12.30km. No installations larger than watchtowers lay in the intervals.

Evidence from watchtowers

Some of the large stone towers have produced ground floor entrances, usually on the south side, as in the turrets of Hadrian's Wall (eg 13/8, 13/43). WP13/8 also produced evidence for a stone floor and a milling stone, taken to suggest a long period of occupation by the individual detachment manning the

tower, and illustrating that corn rations were distributed to the towers so that the inhabitants could prepare their own food there (Ulbert and Fischer 1983, 58).

Communications

The continuing importance of the *Römerstrasse*, the main Roman road running south of, and parallel to, the continuous frontier, has already been referred to.

Strecke 14: from Gunzenhausen to Kipfenberg

Topography

As in the stretch last discussed, the siting of the frontier line in *Strecke* 14 was determined by the early Roman attempt to secure the northern entrance into the fertile Nördlinger Ries by planting garrisons around its northern fringes. As we saw in Chapter 3, the origins of the Roman military dispositions in this area lay in a road pushed out from the Danube, across the northward projection of the Fränkische Jura, towards the Nördlinger Ries.

From Gunzenhausen as far as the area of Weissenburg and Ellingen, the frontier line continues to separate, still today in fairly clear fashion, the fertile Alb Vorland from the unproductive Keuper land to the north. It runs for the most part across gently rolling and intensively cultivated land, taking advantage of slight eminences and ridges where they exist. In the Weissenburg area, however, the frontier encounters the northward projection of the mountainous Alb which is the Fränkische Jura. For the frontier to have deviated to the north, to continue taking in the Vorland to the north and west of the Jura, would have entailed absorbing vast

tracts of land, and this was never attempted. Instead, the frontier line was cut directly across the beginnings of the Fränkische Jura towards the Danube. Because it was designed to take the most direct route possible, it did not follow the old penetration road from the Danube, but ran by a more direct route some distance to the north. This course also had the advantage of not excluding a fertile area on the eastern side of the Alb, and of continuing the general line followed by the Danube in eastern Raetia, and therefore not creating an indentation into Roman territory which would have been created had the road line been followed. After Weissenburg the frontier achieves a slight ridge which runs across the fertile high plateau of the Alb.

Rather than following a straight course between Weissenburg and Böhming on the Altmühl, the frontier line in fact runs in two straight stretches forming an indentation; the angle at which they meet is by Petersbuch, at 14/56. The indentation was dictated by a decision to avoid the valley of the river Anlauter, and to leave that river outside the frontier. To have included any of the Anlauter valley would have necessitated two difficult river crossings. As it is, the frontier has to cross only minor tributaries of the Anlauter as it approaches Böhming and the Altmühl.

For all that the frontier line in *Strecke* 14 was taking a direct route to the Danube, and even though this was done by means of two long, generally straight stretches forming an indentation, there was little of the dead-straight surveying which characterised the outer frontier of Upper Germany. Lengths of the frontier in *Strecke* 14 were surveyed straight for many kilometres at a time, but with a large number of slight kinks and changes in direction, showing that some attention was paid to the topography.

The nature of the continuous barrier

As in *Strecke* 13, large towers predominated in both timber (*'Blockhaus'*) and stone phases; the Raetian Wall was generally brought up to abut the fronts of the stone towers in orthodox fashion. The editors of ORL (A 14, 18-21) attempted to differentiate between timber towers and *'Blockhaüser'*, but there was not always a clear distinction in their form or size (eg *ibid.*, Taf 8.1).

Gates and passages

Several openings in the continuous barriers are known in Strecke 14. Just west of 14/4 was discovered a passage through both palisade and Raetian Wall (ORLA 14, 54-5; Taf 3). At nearby 14/5 was a gap through the palisade, 5m wide, but apparently no passage through the later Wall (*ibid.*, 58; Taf 3). The two towers, 14/4 and 14/5, are abnormally closely spaced. Further reason for thinking that the Schlossbuck, the elevated spur of land along which the frontier runs having left the Altmühl valley, was a favoured area for crossing the frontier may be seen in the presence of the *Kleinkastell* auf dem Hinteren Schlossbuck. Just as the frontier leaves the Schlossbuck, an unparalleled structure is attached to the rear of the Raetian Wall at 14/8. It resembles a shallow tower with chambers attached to either side, but did not possess the characterstics of a gate (*ibid.*, 61-2; Taf 3). At 14/12, which was placed on a notable height, the Raetian Wall left a gap of 4m on the west side of the stone tower (*ibid.* Taf 5). A paved road passed through this opening. The *Zaun* here had also had an opening at a timber tower.

It is thought that the frontier must have crossed an earlier paved road at 14/15 (Ulbert and Fischer 1983, 77), although it appears (ORLA 14, 68) that the road crossed the frontier in the *Flechtwerkzaun* period - it passes through an opening in that

feature, but was blocked when the Raetian Wall was supplied (*ibid*. Taf 6). A 2.50m passage through the Raetian Wall existed at 14/22, one side of the passage, as so often, formed by the (east) side of the stone tower (*ibid*., 74). At 5.20 by 4.70m the tower was typical of the large type encountered in this sector. At 14/25 a possible opening in the *Zaun*, some 2.50m wide, has been noted (*ibid*., 76-77). A passage was provided through the palisade, but not the Wall, opposite 4/56, near Petersbuch (*ibid*. Taf 10). Finally, a 4m break in the palisade was noted at 14/78, just above the Altmühl at the end of *Strecke* 14 (*ibid*., 113; Taf 7).

Forts and minor installations

This section of the Raetian frontier shows a clear pattern of rearward auxiliary forts complemented by forts of smaller size - conventionally thought of as *numerus* forts - closer to, or actually upon, the frontier line itself.

Thus the stone fort at Gunzenhausen, situated to supervise the entry of the Altmühl into the fertile Vorland enclosed by the frontier, was only 0.70ha in size; its garrison is unknown (Schönberger 1985, 486). A considerable distance south of the frontier line the Altmühl valley was flanked by the forts at Gnotzheim (see *Strecke* 13) and, to the east of the valley and 7km from Gunzenhausen, at Theilenhofen. Here a stone fort of 2.70ha (the early occupation of the site was discussed in 1.7.2 above) was garrisoned from the Antonine period into the third century by *cohors III Bracaraugustanorum eq*.

Similarly, the *ala* fort at Weissenburg lay well back (5.75km) from the frontier, while 1.75km from the line itself, and 4km north of Weissenburg, lay the 0.72ha stone fort of Ellingen. Here too, the garrison is unknown, despite its conventional designation as a *numerus* fort. The recently discovered inscription of 182 recording rebuilding by *pedites singulares*

of the provincial governor's staff is not thought to shed light upon the permanent garrison of the place (Schönberger 1985, 486); it has been suggested (Dietz 1983) that the fort was manned by detachments from Weissenburg.

A further fort is postulated at Oberhochstatt, 6.5km east of Weissenburg, where bronze letters from an elaborate dedicatory inscription are known (ORLA 14, 89-90; Schönberger 1985, 487). Little is known of the site, but its small size has led to it being spoken of as suitable for a *numerus* (Ulbert and Fischer 1983, 87). Such a site would have had a similar relationship to Weissenburg and the frontier line as Ellingen. Apart from the well-known fortlet - the Burgus in der Harlach - a third Roman military site is known nearby. Immediately south of the *Römerstrasse*, aerial photography has revealed what is either a temporary work or an auxiliary fort. There is no knowledge of its exact nature or date, however, and on present evidence it may as well be an early installation connected with the penetration road rather than a permanent part of the second and third century frontier system.

There is now a very long interval of some 26km before the next fort site on the frontier line, at Böhming on the Altmühl. The known fort at Böhming (stone, 0.70ha) is *numerus*-sized; like the original fort at Dambach, it only possessed two gates. But it illustrates the danger of indiscriminate use of the '*numerus*' label, for the evidence of inscriptions suggests that in the third century it was garrisoned by detachments of *cohors I Breucorum*, whose base was at the 2.50ha fort of Pfünz, 10km behind the frontier at the point where the old penetration road - the *Römerstrasse* - crossed the Altmühl (Southern 1989, 123).

The fortlets found along the frontier line in *Strecke* 14 are generally of the smaller, milecastle-like size; there is no regularity in the spacing of the known examples. 1.75m from Gunzenhausen and the Altmühl, lay the *Kleinkastell* auf dem Hinteren Schlossbuck (WP 14/6: stone, 0.04ha). This is a

further structure with a square shape, and possible internal court, leading Schleiermacher (1962) to compare it to African structures. It is therefore possibly a late addition. The presence here of several passages through the continuous barriers has been noted, and it seems likely that the role of the fortlet here was to supervise the routes across the frontier which went over the *Schlossbuck* - following an old route - and not through Gunzenhausen and the Altmühl valley itself, where boggy ground to the north would have made passage difficult. The route over the *Schlossbuck* proceeded in the direction of the rearward fort of Theilenhofen (Baatz 1975, 237).

5km further on lay Theilenhofen, some 2km behind the frontier line; then, after another 7.50km, the *Kleinkastell* bei Gündersbach (WP 14/26: stone, 0.036ha: not in ORL). The fortlet was placed to survey the valley of the Rezat, which crossed the frontier 750m to the east. A further 3km intervenes before Ellingen - well detached from the frontier line - and then a further 4.50km before the site of a postulated (Ulbert and Fischer 1983, 85) fortlet at 14/38. Such a fortlet, if it existed, would have surveyed the approaches of the Felchbach and the Rohrbach to the frontier. 2km further on comes the postulated Oberhochstatt fort site, and shortly after that the well-known *Kleinkastell* in der Harlach.

The Harlach structure is without parallel on the German or Raetian frontier; it is stone, *c*0.10ha, with a plan featuring rooms attached to the insides of the defensive wall forming four ranges around a central court. It is dated to the third century. It has been compared to the *centenaria* of North Africa (Schleiermacher 1962). It is not clear that this structure is closely linked with the linear frontier installations and fortlets of more orthodox type; its location immediately beside the main *Römerstrasse*, running behind the frontier and continuing in use as a separate arterial route,

suggests that the Harlach structure may represent a late road station.

4km from the postulated Oberhochstatt fort, and 6km from the postulated fortlet at 14/38, lay *Kleinkastell* Raitenbuch (WP14/49: stone, 0.036ha). After a further 4.50km occurs *Kleinkastell* Petersbuch (WP14/55-56: stone, 0.04ha). The latter site has sharp rather than rounded corners, which may indicate a late date.

Neither Raitenbuch nor Petersbuch are situated in relation to any topographic feature or known route which the frontier crosses to explain the exact reason for their location. However, they are placed at the one place where the *Römerstrasse*, running up from Pfünz to Weissenburg, comes close to (1.50km), and runs parallel to, the frontier line for a distance of only 6km. It is possible that these fortlets were located to provide extra protection for traffic on the road at the one point where it passed very close to the frontier itself; it is significant that the late fortified Harlach structure, occurring in close connection with the road, is located in the same sector.

The earthwork known at WP14/66, the *Kleinkastell* Biebig of ORL, is now no longer thought to be of Roman date; the next fortlet is therefore Hegelohe (WP14/67: stone, 0.04 ha). This fortlet is of exactly the same size and type as Petersbuch, with single gateway and sharp external corners. They are both therefore of the '*centenaria*' type classified by Schleiermacher (1962), and this may indicate a late origin. Hegelohe is placed right on the edge of the more easterly of two valleys cutting south across the frontier from the Anlauter valley. This is the last fortlet before the Altmühl crossing at Böhming and the end of *Strecke* 14.

The average spacing of installations larger than watchtower size along the actual frontier line in *Strecke* 14 is therefore

about 5km (not including Weissenburg, far behind the frontier, and the Harlach structure). Because there are notable clusters of installations in the *Strecke* - such as the closely associated Gunzenhausen fort and Schlossbuck fortlet, or the closely spaced postulated sites at WP14/38 and Oberhochstatt - the average spacing figure in fact disguises some quite remarkable intervals, such as that between Petersbuch and Hegelohe, where for many kilometres at a time no installations were provided to supplement the chain of large, but relatively widely-spaced towers drawn across the generally level landscape.

Evidence from watchtowers

As usual, finds from the watchtowers have been scarce; another example of a hand milling-stone is known from the stone tower at 14/24 (ORLA 14, 75), while the timber tower at 14/25 produced a coin of 166/167 (*ibid.*, 76) which may provide a *terminus post quem* for the tower's replacement in stone. In the large, 6.45m by 5.77m stone tower of 14/64 were discovered two hearths; the same was true of WP 14/65, 14/75 and 14/77 (*ibid.*, 101-112).

Strecke 15: from Böhming to the Danube

Topography

The frontier line in *Strecke* 15 ran in two long stretches - surveyed with more dead straight accuracy than in *Strecke* 14 - across fairly level, gently undulating country, broken by only a few valleys. The artificial frontier joins the Danube at that point where the precipitous walls of the Danube ravine begin: in other words, from this point onwards it was considered that the river alone could fulfil the role that had

elsewhere necessitated the construction of an artificial land frontier.

Beyond the frontier in this sector ran the steep-walled valley of the Altmühl; behind it, the broad, marshy valley of the Danube. The exact siting of the course of the running frontier seems to have been decided by the need to draw a direct line to the point where the Danube ravine begins, and by the desire to place the frontier to the north of, and clear of, the rich, open land immediately north of the Danube, traversed by the *Römerstrasse*.

Evidently the original scheme was to circumvent the Schambach valley completely, leaving it beyond the frontier. A change of plan during the layout of the frontier had the result that where the two straight stretches meet, the frontier was projected forward in a notable salient which has to make two crossings of the Schambach. The reason for this was apparently the need to secure and protect a bridgehead, a crossing of the river leading to the north. Baatz (1975, 262) has remarked that there are iron ore deposits immediately to the north of the frontier here, and that this may have been the point where an old route had gone out to the north.

The nature of the continuous barrier

Strecke 15 displays the conventional sequence of palisade, *Flechtwerkzaun*, at least in places (ORLA 15, 17), and Raetian Wall. The *Flechtwerkzaun*, however, is recorded at very few points, and it may be that because of a late provision of the palisade in *Strecke* 15, it never required replacement to the same extent as in *Strecken* 14. The timber towers continue to be of the large *Blockhaus* type.

Gates and Passages

Not so much evidence for passages through the barriers has been recorded in *Strecke* 15. At WP15/5 the large timber tower was overlain by the Raetian Wall; the stone successor just to the east of the timber tower, of rather unusual plan, had, immediately upon its east side, a 3m passage through the Raetian Wall. This had been blocked at some time. The palisade had been uninterrupted (ORLA 15, 29-30; Taf 5). To the east of 15/5 occurs the odd phenomenon of two stretches of stone wall, running on different alignments (*ibid.*; Ulbert and Fischer 1983, 99-100).

Forts and Minor installations

In terms of garrison posts placed upon the actual frontier line *Strecke* 15 represents one of the most lightly manned sectors of the Upper German and Raetian frontiers. The two large *ala* forts of Kösching (4ha) and Pförring (3.90ha) lay far behind the frontier line, and were more intimately linked with the road system to the north of the Danube. On the frontier itself, 13.50km from Böhming were two *Kleinkastelle* separated by only 3.50km: Güssgraben (15/18: stone, 0.04ha) and Am Hinteren See-Berg (15/23: stone, 0.04ha). The latter of these posts has sharp external corners, and is thus a possible late addition. These are the only known fortlets on *Strecke* 15. Although Güssgraben is near a dry stream-bed or valley, crossing the frontier 500m to the east (Baatz 1975, 267), both of these fortlets may be better explained in terms of a general provision of supervision in the broken landscape of the Köschinger Forest, where an outlying spur of the Jura is crossed by the frontier. Here there must have been a number of potentially clandestine approaches to the frontier. Again then, there is no regular provision or spacing of fortlets: two

are provided in close proximity where special circumstances necessitate them.

A distance of 2km further on from the See-Berg, a site to guard the crossing of the Schambach valley possibly awaits discovery. Baatz (1975, 262) has suggested a *numerus*-sized fort. This point is still approached by modern routes crossing the frontier, and was mentioned above as a possible bridgehead allowing access to the north. A further 14km intervenes between the Schambach and the end of the frontier on The Danube. Even taking into account the postulated site, the average spacing of known installations in *Strecke* 15 is very wide: some 8.25km. For this reason, and because the auxiliary forts lay so far back from the line, Baatz (1975, 263) has suggested that further *Kleinkastelle* must await discovery.

Despite this intriguing suggestion, the over-riding impression from this final sector of the Raetian land frontier before the Danube is reached is of a very lightly supervised line. Beyond, to the north, was the Frankische Jura. Here no important concentration of native settlement or German tribal area is known to have existed. The flat fertile area to the north of the Danube was watched directly by the mobile *alae* of the two auxiliary forts, which could move swiftly to intercept any raiders who had arrived in large enough numbers not to be impeded by the light anti-infiltration screen placed to the north of the settlement zone; such raids were evidently not expected to be frequent.

Evidence from watchtowers

The excavated examples of stone towers exhibit the general characteristics of the Raetian type, possessing the same general size, rearward ground floor entrances and internal hearths as in the previous *Strecke*. For example: 15/11 and

15/15, which also contained five steps of a staircase (ORLA 15, 32-3).

Chapter 5

THE DEVELOPMENT OF THE BRITISH LINEAR FRONTIERS IN THE SECOND CENTURY

In Chapter 2 we followed linear frontier development in north Britain up to the decision, under Hadrian, to build a Wall on the Tyne-Solway Isthmus. It is not proposed here to examine closely the evidence for the exact date of commencement of Hadrian's Wall. Given the vague dating of the Continental developments with which the British Wall systems are to be compared, the date of the Wall decision may simply be accepted in this context as early-Hadrianic.

In this Chapter the broad development of Hadrian's Wall and its attendant installations will be sketched up to the early Antonine period, when advance into Scotland took place, and the Antonine Wall was constructed on the Forth-Clyde Isthmus. The development and installations of the Antonine Wall are described. Then follows a detailed study of the problem of Antonine chronology in the north, centring on the problem of how many periods of Antonine activity should be ascribed to Roman sites in Scotland, and reviewing the evidence for the date of the abandonment of the Antonine Wall. In a final section the development and nature of Hadrian's Wall, as restored upon the abandonment of the Scottish Wall, will be considered.

5.1 Hadrian's Wall: the first scheme (Fig 17)

5.1.1 The topography of the linear frontier

The Hadrianic running barrier was designed from the outset to follow different kinds of alignment in differing sorts of landscape. From Newcastle to the beginning of the Whin Sill, around Milecastle 33, the Wall was laid out in long straight stretches, evidently carefully surveyed over many miles. Although the siting of the Wall displays a decisive move to place the patrolled frontier north of the river Tyne, throughout this eastern sector there was no obvious ridge or high commanding line for the Wall to seize. Therefore it ran from high point to high point through an uneven, rolling landscape. Often the Wall did not often possess, in this sector, a commanding view to the north.

In the central sector, on the great Whin Sill, the Wall seized the precipitous volcanic ridge. It ran a different kind of course here, weaving to maintain the crest of the crags. However, it is notable that the Wall did not sacrifice its directness of line in order to maintain a commanding view to the north; Greatchesters, for example, looks north to a higher ridge of land than that occupied by the fort itself.

As it descended from the Whin Sill at Carvoran, the Wall resumed a course of predominantly straight stretches. Between the Irthing and Castlesteads, the course of the Wall was determined by the well defined narrow east-west running ridge north of the Irthing, and here ran in shorter stretches obviously constrained by the topography. Between Castlesteads and Carlisle, there was once again no obvious feature for the Wall to follow as it cut arbitrarily through the landscape, and it once again adopted straight stretches surveyed over a long distance.

From Carlisle to the Solway, the Wall was laid out partly in long curving sectors, and partly in straight stretches. There was no obvious ridge of elevated ground for the Wall to follow, and its curving course immediately West of Carlisle suggests that it may have been sited in relation to the course of the river Eden. Further west it ran in short straight stretches overlooking the coastline.

5.1.2 Forts, garrisons and their spacing

In the first scheme there was no provision for whole, permanently based *alae* or cohorts on the line of the Wall itself.

5.1.3 Minor installations and their spacing

The first scheme relied upon milecastles and turrets, linked by the Great Wall and ditch, and by whatever rearward communication existed in the pre-Antonine period. On those parts of the Wall where there is sufficient knowledge of the remains to know the disposition of the minor installations, they have a famous and striking regularity. The milecastles occur at intervals of roughly one Roman mile, with minor adjustments to suit local circumstances or for reasons that are not fully understood. Between every pair of milecastles were generally two turrets (watchtowers).

5.1.4 Wall, ditch and Building Materials

As is well known, the project commenced in the east with a stone Wall built to a uniform gauge of ten feet - the Broad Wall. Many of the minor installations all the way from the Newcastle to the Irthing were built first with 'Broad' wing walls ready to receive the curtain when it arrived. The Broad

Wall was actually only completed between Newcastle and about Milecastle 22 before the revised building scheme for the Wall was instituted, although the broad foundation occurs in places all the way to the Irthing. West of the Irthing the Wall, milecastles and forts were built of turf, with the turf curtain abutting stone turrets. A great ditch accompanied the Wall, in front of a berm of *c*6m on the stone Wall, less than 2m on the turf Wall. The ditch varied between 8m and 14m in width, and was between 2 and 3m deep, cut, like the Vallum, into bedrock where necessary. The ditch was only omitted for any considerable length where rendered superfluous by the positioning of the Wall on precipitous crags in the central sector.

5.1.5 The existence of a wall-walk

That the top of the Wall was finished with a walkway and parapet is often assumed, but cannot be proved. The evidence of linear frontier barriers on the Continent has been taken to indicate that a wall-walk might not have existed. Conversely, some points of difference from the Continental frontiers - especially the declining importance of watchtowers (turrets) on Hadrian's Wall - may be taken to imply that the wall-top was patrolled (see below, Chapter 6). Here it will suffice to list briefly the main indicators in the archaeological evidence from Hadrian's Wall that a wall-walk existed.

1. The occurrence at a number of locations (listed in Bidwell and Holbrook 1989, 135) of chamfered stones from the north side of the Wall curtain, possibly from a string course beneath a parapet.

2. The blocking of the recesses at the site of demolished turrets, suggesting that a wall-walk needed to be carried over the recess (Bellhouse 1969, 86).

3. The repositioning of the northeast angle-tower of Housesteads, so that it coincides with the point where Hadrian's Wall meets the fort, may suggest that there was access from the tower onto the Wall-top. It may be noted that the Wall invariably meets forts at points where towers could have allowed such access.

4. The relationship of the replacement Stone Wall to Turf Wall turrets. When brought up to abut the sides of the turrets, the Stone Wall was set back from the front of the turrets by *c*1m. This may indicate the continued use of a door leading from the turret, its position necessarily set back from the front because of the battered face of the original Turf Wall (Bellhouse 1969, 88-9). If accepted, this evidence also points to the continued use of the wall-walk after the Turf Wall was converted into stone.

5. The nature of the stone bridges at Chesters and Willowford, which, in their first form, carried not a road, but the Wall itself, over the rivers North Tyne and Irthing (Bidwell and Holbrook 1989). Such an arrangement is unknown on any other frontier (the Raetian Wall, for example, is simply discontinued at river crossings). The need to continue Hadrian's Wall across the rivers suggests the use of a Wall-walk.

6. The great thickness of the Stone Wall, both in its original Broad form and later reduced width, is not fully explained by any factor except the existence of a wall-walk and parapet. In the same way it significant that The Turf Wall (and the Antonine Wall) were structures built of coursed turves in the manner of a fort Wall, and not earth mounds, like the German *Pfahlgraben*. It could be argued that Hadrian's Wall was so thick simply for the sake of impressiveness, but then that would be as unique a phenomenon (in an empire-wide context) as a wall-walk.

Other evidence which has been advanced for a wall-walk, a flight of steps in Milecastle 48, does not show that the Wall as well as the milecastle walls was patrolled. The Rudge Cup and Amiens skillet depict Hadrian's Wall with crenellations, but the representation may be stylised; the merlons are depicted only on towers that rise higher than the curtain in between. No merlon caps or stones from crenellations have been found associated with the curtain, although they do occur at forts, turrets and milecastles (Crow 1991, 61). This does not show that the curtain did not possess a parapet. Crenellations on the curtain may simply have been less elaborate than those at the installations, being capped with rough flags or cement.

5.1.6 Communications system

The basic evidence that the Military Way did not exist in the Hadrianic period is its relationship to the Vallum, which it frequently overrides. It may be presumed that a track of some sort linked the minor installations which in the first scheme sufficed to serve the Wall, although no trace of it has been found, except perhaps at Tarraby Lane (Smith 1978, 23-4). A similar metalled track immediately behind the Wall at West Denton may be relevant, but it survived in use into the third century, ie it was not superseded by the Military Way (Daniels 1989, 73).

In the central sector, access to such a track must have been from the Stanegate, by means of branching routes similar to those that would later serve the forts eventually to be planted on the line of the Wall. The same is true of the western sector of the Wall, between Carlisle and Milecastle 80, where the pre-existing road was never far behind the Wall-line and branch roads (of unknown date) connecting the two are known (Bruce 1978, 258). However, between Carlisle and Willowford (where the Wall crossed the river Irthing), all of the Stanegate forts are separated from the Wall system, first of

all by the river Eden, and then by the Irthing. Access to the service track would have to be gained from Carlisle, and there is no further known point of access across the rivers for the next 17 Wall-miles; even at the end of this stretch, there is no clearly observable way in which wheeled traffic could have reached the Wall at Harrow's Scar from the Stanegate: the first bridge at Willowford was not a road bridge, but carried only whatever walkway the Wall possessed across the river (Bidwell and Holbrook 1989, 50-77).

Thus it is possible that all routine service journeys to the Wall at any point west of the Irthing may have had to set out from Carlisle. This probably applies to building gangs also. The fact that builders on opposite sides of the Irthing may have had to come from widely separated points underlines the possibility of a separation of commands lying behind the building of the Wall in different materials on either side of the river.

One further possible river crossing that has been suggested, however, is at Irthington, by the fort of Brampton Old Church. Traditionally, this would be seen as the point where the Stanegate crosses to run north of the Irthing and Eden to Carlisle. It was accepted above, however, that the Stanegate is more likely to have remained wholly south of these rivers on its approach to Carlisle. The road that has been detected in the vicinity of Crosby, south of the Vallum, running to Carlisle, has now been suggested, by Bidwell and Holbrook (1989, 152) to be a Hadrianic service road (an extension of the Stanegate) to supply the second-scheme Wall forts north of the rivers (cf Bruce 1978, 243). A possible role for the fort at Brampton Old Church would be the control of the point where such a road, branching from the Stanegate, crossed the Irthing, to allow access to Birdoswald and Castlesteads. Even if the Stanegate itself remained wholly south of the Irthing, Brampton could possibly have had a pre-Hadrianic role guarding a crossing of the Irthing which allowed access to the towers at

Pike Hill and Birdoswald, if they are indeed earlier than the Wall.

There would also have been considerable difficulties in operating an isolated service track east of the North Tyne, if our knowledge of the sites which existed at the time of the first scheme is anywhere near reliable. Access might be gained easily enough from Corbridge and Dere Street, but there is no further point of access from south of the Tyne until Newcastle, 18 Wall-miles away. Here the name of the place has long been taken to suggest a bridge of Hadrianic date, but the pottery from the known fort suggests a mid-Antonine origin. It is thus by no means certain that a bridge existed at Newcastle as early as the Hadrianic period; the epithet Aelius could as well apply to Antoninus Pius. Even if an undetected Hadrianic crossing exists at Newcastle, halving the furthest distance from a point of access from 18 Wall-miles to 9, it still means that a considerable distance, almost a day's march, had to be traversed to reach the furthest flung milecastles and turrets from the nearest garrison base. That the 18 mile separation of river-crossing access and furthest installation might obviously be considered unsafe, is perhaps the strongest argument for the existence of a bridge at Newcastle in the Hadrianic period. Although the known fort at Newcastle is unlikely to have originated so early, it is always possible that an undiscovered Hadrianic fort to mark the terminus of the Wall existed on the south (Gateshead) side of the Tyne.

It will be necessary to compare this degree of isolation and inaccessibility of certain stretches of the first scheme for Hadrian's Wall with the continental parallels; within a purely British context, however, it becomes possible to see one reason why the decision may have been taken so soon to site the garrisons amongst the milecastles and turrets. Rather than being a matter of strategic mobility, liberating the Stanegate garrisons now prevented by the Hadrianic barrier from operating freely to the north (Breeze and Dobson 1972, 190), the decision

may have been a response to the practical - and not quite as predictable - problem of supplying and safeguarding widely dispersed detachments in milecastles and turrets which in certain sectors were difficult of access.

5.2 Hadrian's Wall: as completed (Fig 18)

5.2.1 The topography of the frontier

The addition of the Wall-forts does not seem to have affected the general course followed by the Wall. It is now known that in places in the central sector the completed narrow Wall (the narrowing of the gauge thought to be precipitated by the fort decision) was not built upon the broad wall foundation already prepared, but rather on a completely separate alignment. This implies a considerable interval between the initial broad foundation laying and the building of the Wall superstructure.

5.2.2 Forts, garrisons and their spacing

The change of plan in the construction of Hadrian's Wall saw a decisive shift from the notion of a rigorously separated line of frontier security and disposition of garrisons. From the moment of the decision to build a series of fairly regularly spaced (Swinbank and Spaul 1951) auxiliary forts on the line of the Wall itself, the process of military occupation and garrisoning, and that of frontier patrol and police, became inextricably intertwined. Hadrian's Wall in its first two conceptions allows us to examine two distinct models of linear frontier control.

On the line of the Wall itself, there are anomalies. Wallsend is often thought to be part of a later-Hadrianic extension of the Wall east of Newcastle (but see Breeze and Dobson 1972,

193). The known fort at Newcastle would seem to be mid-Antonine. Carrawburgh overlies the Vallum, and is therefore later than the primary forts; however, its attribution (Swinbank and Spaul 1951, 227, n.22) to the governorship of Sextus Julius Severus (*c*128-132) is based upon a highly ambitious restoration of RIB 1550. Indeed, the name ...]*io Nepote* appears on this building stone of *cohors I Aquitanorum*, and it is perhaps only the curious relationship with the Vallum that has prevented this fort from being thought to be built within the term of Nepos, who may well have governed until *c*126. Similar doubts surround Greatchesters, although J Bennett (1984) has shown that RIB 1735 need not necessarily, as is usually thought, be later than 128 in date. This stone, however, splits Hadrian's name across two lines in a manner unlike that of the Platorius Nepos building stones (as does a Hadrianic slab from Moresby). The early histories of forts on the turf section of the Wall west of the Irthing remain obscure.

The building of the Wall forts did not mean the abandonment of every fort on the Stanegate line. It is traditionally thought that the forts on the old road at Corbridge and Vindolanda were given up during the Hadrianic period. In the case of the former, this was a view heavily influenced by the epigraphic evidence, which describes much Antonine reconstruction at the site. At neither site is there in fact any reason to believe in an Hadrianic abandonment, and at Vindolanda there may be epigraphic evidence of stone building at this time (Bishop and Dore 1989, 140; Bidwell 1985, 9-10). Elsewhere, the Stanegate fort of Carvoran probably continued in use, being replaced in stone in the 130s (RIB 1816; 1818; 1820). There is evidence (Bruce 1978, 210-11) of activity at Nether Denton continuing into the second century, although it is not clear whether this represents military activity. After the building of the fort at Stanwix on the Wall, there continued to be a fort on the Annetwell Street site in Carlisle, only 1km to the south, which continued in use into the fourth century (Daniels 1989, 27-9).

In every case where there is reasonable knowledge of the size of a Wall fort in the Hadrianic period, the fort is sufficiently large to have held an entire auxiliary unit. The Hadrianic garrisons of very few of the Wall forts are known for certain: at Chesters (2.30ha) it was *ala Augusta ob virtutem appellata* (Austen and Breeze 1979). The recent discovery at Vindolanda of a diploma of this unit dated to after 144 has been taken by M Roxan to suggest strongly that *cohors I Tungrorum* moved from Vindolanda to form the Hadrianic garrison of Housesteads (Bidwell 1985, 97). Other attested Hadrianic garrisons are *cohors I Hamiorum*, rebuilding Carvoran in 136-38 (RIB 1778), and the milliary *ala Petriana*, placed at Stanwix from the outset on the basis of the fort's size being suitable for this uniquely large British cavalry unit (milliary by the time of a diploma of 122). The completely recovered Hadrianic plan of Wallsend suggests accommodation for a *cohors quingenaria equitata* (Daniels 1989, 79).

It is therefore clear that although few individual Hadrianic garrisons are known, there is no reason to believe that each of the forts was not intended to hold a single and complete auxiliary unit. There is no combination of the archaeological evidence of fort-size and epigraphic evidence to suggest the widespread use of detachments; there are no records of irregular units that can be dated this early in Britain. If the physical situation of garrisons upon the line of the Wall means that those garrisons were responsible for the routine manning or maintenance of the Wall, that should mean that this work was carried out by normal auxiliary cohorts and *alae*, or detachments therefrom.

5.2.3 Minor installations

The milecastles and turrets correspond to two classes of installations, fortlets and watchtowers, familiar from the

Upper German and Raetian frontier, although the relative regularity of their spacing is quite peculiar to Britain.

The interiors of very few milecastles have been fully explored. There seems to have been a variation in the amount of internal accommodation offered. Either a pair of barracks faced each other across the internal street (in a way reminiscent of many German fortlets) or a small two roomed building occupied one corner of the enclosure. This variation occurs as follows in the milecastles whose interiors are known. Where the evidence certainly relates to the primary period, it is in **bold**. In certain of the 'small building' milecastles the accommodation would later be extended and longer blocks provided.

small building	barrack pair
9	
35	
37?	
	39?
	47
	48
50TW	
	51
79TW?	

A most important point to note is that both milecastles and turrets were retained in use after the decision to site the auxiliary forts on the line of the Wall. Most turrets, where excavated, have produced Hadrianic and later pottery from their early occupation levels, and go on to have a history extending until at least the later second century; they formed an integral part of the Hadrianic 'Wall as built' scheme. Milecastles were invariably occupied into the fourth century.

5.2.4 Building Materials

The decision to narrow the gauge of the Wall may have been connected with the difficulty of transporting materials to provide its core once the clay capped sandstone bedrock of the eastern coastal plain and Tyne valley had been left behind for the Whin Sill; however, there is no evidence that the Narrow Wall decision had an immediate effect on the materials used in the Turf Wall sector. The pottery from Stone Wall Milecastle 50, and Stone Wall turrets 49b, 50a and 50b, however, shows that this sector of the Turf Wall was replaced in stone - on a celebrated different alignment - within the reign of Hadrian (Bruce 1978, 213-14).

5.2.5 The Vallum

The Vallum itself still defies obvious explanation. As it has tended to be viewed in terms of a demarcation, it may be appropriate here to re-emphasise the formidable nature of its construction. Running without interruption from Newcastle to the Solway the huge ditch and associated mounds were hardly less impressive than the works of the Wall itself, and surely not a project lightly undertaken. The only complete section excavated in recent times, at West Denton in 1987, showed that the flat bottomed ditch, 6m wide, had been cut 2.44m into the sandstone bedrock (Daniels 1989, 73). The excavators were left with the impression that this was no mere tripwire-equivalent or hurdle against delinquent civilians.

Whatever its true function, the Vallum had the immediate effect of reducing points of access through the Wall from about 90 to a mere 14 or so, where either fort access road causeways crossed the Vallum, or (presumably) where roads running north of the Wall crossed it (the only such passage through the Wall certainly known is at the Portgate). Naturally this restriction would not have affected the ability of the Roman

military stationed on the Wall to use the milecastle gates; but for any general north-south traffic of a non-military nature, the addition of the Vallum had the effect of turning the Wall system into a much more preclusive barrier. Whether the preclusive effect of the Vallum was its main intended purpose, or merely a by-product of the real intentions behind the feature, must remain uncertain; however, this preclusive nature is an interesting pointer to the way in which the Wall operated, and was intended to be treated by the local population, in its early days.

5.2.6 Communications system

Clues to the working of the completed Hadrianic linear system may be gained from its road system. Although it has long been appreciated that the Stanegate continued in use as an arterial route, with branch roads going off to supply the Wall forts of the central sector, it has only recently been argued in detail that with the addition of the forts to the Wall, roads must have been extended to the east and the west from the Stanegate, north of the Tyne and the Irthing\Eden respectively, in order to supply and service the new forts (Bidwell and Holbrook 1989, 150-53).

West of Carlisle (where there is very little evidence) this 'Hadrianic service road' may have coincided with the 'Western extension' of the Stanegate argued for above, just as the Stanegate in the central sector could continue to serve as the 'Hadrianic service road'. Elsewhere, however, the Hadrianic road will have taken a new line, if we are right in thinking that the pre-Hadrianic road ran wholly south of rivers Eden, Irthing and Tyne. An ingenious explanation for the 'lesser military way' to either side of Carrawburgh is that, because there was no branch from the Stanegate to this fort, access was gained from Chesters and Housesteads, the recipients of the nearest branch roads from the Stanegate: thus an access road

had to be built from each of these neighbouring sites (Bidwell and Holbrook 1989, 153).

Presumably the Hadrianic service road co-existed with whatever track there was to provide direct passage from turret to turret, and milecastle to milecastle, along the line of the Wall itself, a division of functions that would not be seen on the slightly later Antonine Wall system.

The track and the road were separated by the Vallum, the Wall's rearward earthwork, which seems to have been commenced as soon as the fort decision was taken. The undug Vallum causeways presuppose not only the existence of the Wall forts, but also of a communication route to be reached by the roads running out of the south gates of the forts to cross the Vallum: this would be the Stanegate or, north of the rivers, the Hadrianic service road. There is a suggestion at Turf-Wall milecastle 50 that when the Vallum was supplied it had to be squeezed right up against the Wall and milecastle in order not to interfere with a pre-existing route, which may have been the Hadrianic service road running behind the Wall (but very close to it because of the precipice to the south) (Bidwell and Holbrook 1989, 152).

5.2.7 Outposts

Birrens, Netherby and Bewcastle are generally considered to be the outpost forts established under Hadrian; the latter two sites have each furnished Hadrianic building inscriptions (RIB 974; 995) while there is strong structural evidence for a Hadrianic fort at the former (Robertson 1975). Perhaps, because they do not furnish inscriptions earlier than the Antonine period, it is not customary to see the later eastern outposts, Risingham and High Rochester, as being rebuilt under Hadrian, or held during his reign. However, there has been insufficient excavation at either site to demonstrate that it was empty for any period before the 140s. Although High

Rochester saw rebuilding under Pius (RIB 1276), it may well have been occupied under Hadrian.

5.3 The Cumberland Coast Frontier

As is well known, however, a linear series of installations continued to run from Bowness-on-Solway, the western terminal of the Wall, down the Cumberland coast.

5.3.1 Topography

The topography of the frontier is everywhere defined by the coast, which it follows and closely overlooks; the milefortlets were situated on cliff-edges or as close to the sea as could be safely managed. The installations did not, however, as was once thought, run around the Moricambe estuary.

5.3.2 Forts, garrisons and their spacing

In contrast to the Wall, there is no absolutely clear sequence by which the auxiliary forts relate to the minor installations. The forts in question are Beckfoot, Maryport, Moresby and Ravenglass, of which only the first two need have any direct connection with the system which, on present knowledge, ends just south of Maryport (the fort at Burrow Walls, between Maryport and Moresby, is perhaps not part of the original system: Bruce 1978, 279). Moresby (RIB 801; *pater patriae*) and possibly Maryport (RIB 851) have produced Hadrianic building inscriptions. At none of these places is there evidence for pre-Hadrianic occupation on the known site (although the possibility of an earlier base away from the known site, especially at Maryport, must be borne in mind: Jarrett 1976, 87-8; Potter 1978, 493-5).

There is no reason to think that Beckfoot and Maryport (the forts forming part of the linear coastal frontier) were not designed to accommodate whole and single auxiliary units, in the manner of the Hadrian's Wall forts. At Maryport this garrison was the milliary *cohors I Hispanorum equitata*. As far as spacing is concerned, this is somewhat wider than the usual 10km between the forts on Hadrian's Wall; Maryport is some 14km from Beckfoot, which is situated over 18km from Bowness.

5.3.3 Minor installations and their spacing

The system has been traced from Bowness for c35km to the south. Equivalents to milecastles (milefortlets) are numbered from MF1 (Biglands), one mile west of Bowness, where the Wall ran into the Solway. Pairs of watchtowers are known between the fortlets. Thus was the regular arrangement of minor installations on Hadrian's Wall replicated. On this numbering system, the installations have been traced as far as Tower 26b, just south of Maryport: milefortlets 6-9, once thought to have run around Moricambe, are not now thought to have existed (Bellhouse 1989, 31).

The Milefortlets appear to have been generally the same size as the Wall milecastles, but on the north side of the Moricambe estuary, which no auxiliary fort is known to have closely overlooked (Kirkbride was probably abandoned by this time), MF5, Cardurnock, was of exceptionally large size. Of the three sites whose interiors have been explored, Cardurnock (MF5) and Swarthy Hill (MF21) (Frere 1992, 271) have produced pairs of barracks, those in the latter facing each other across a central street in milecastle-fashion; Biglands (MF1) in its first phase has produced smaller detached buildings to either side of a street, interpreted as very small barracks (Potter 1977, 163), as occur at some milecastles. The pattern, then, is highly reminiscent of that of the milecastles.

The freestanding stone watchtowers, at some 6m square, are comparable to the turrets on the Wall.

Some have maintained that the system must extend further to the south than Tower 26b, as far as St Bees Head, or beyond, although intensive searching has failed to find any trace beyond the last known tower (Bellhouse 1989, 57). Of candidates suggested for milefortlets further south, the crop-mark at Harrington (Jones 1982, 296), if it represents a site at all, has been shown by Bellhouse to lie 300 yards from the cliff-edge, an unusual distance from the sea in terms of the known series; similar objections have been brought (Bellhouse 1989, 63-4) against the inclusion (Potter 1979, 14-18) of a ditched enclosure preceding the auxiliary fort at Ravenglass in the milefortlet series. Besides being situated at least 60 yards from the sea, the Ravenglass structure possesses no gate giving out on the direction of the coast, and commands no view of the sea itself, but only a river estuary: it is as well interpreted as a proto-installation on the fort site. In similar circumstances in the Moricambe estuary the system was omitted.

5.3.4 Evidence for running barriers and a communications system

In the northern part of the system elements of running barriers have been claimed to complete the frontier works. From Bowness to the west the system of fortlets and towers is said to have been enclosed between two parallel V shaped ditches, which where sampled were 1.50m across by 0.80m deep (rear) and 2m by 0.60m deep (front). These ditches were 32-46m apart (Jones 1982, 286-87; Bruce 1978, 261-62). More of the double ditch layout was said to be located at NY 204616, west of Biglands. Aerial survey is said to have suggested that between MF 3 and 5 'simply a single forward ditch was involved' (Jones 1982, 287).

'At the position of T4b evidence for a cobbled patrol road has been noted' (Jones 1982, 287-88). At this point also, a sequence was claimed: first a palisade trench, 0.50m-1.0m wide, backed by a clay platform 3.0m by 2.20m in area and surrounded by what sounds like a clay or turf wall; these immediately in front of the claimed cobble track, and set some 11m back from the single ditch. Second, these features were superseded by a second, narrower (0.30m-0.40m) palisade slot which cut through the clay platform. Thirdly, a stone tower, some 4.30m square overall, built over the filled in forward ditch. No clear reason was given why these three phases might not be reduced to two, and the stone tower may be contemporary with the second palisade.

South of the Moricambe, at Silloth, aerial photography and excavation have suggested a coastal road or patrol track, 3.80m wide and flanked by ditches, with, between it and the sea, two (successive?) not quite parallel palisade slots; the more westerly 0.40m deep and 0.45m-0.50m wide, the eastern 0.55m wide and 0.35m-0.40m deep. Each revealed post-impressions in pairs 'designed to hold together a wattle fence rammed between the two uprights' (Jones 1982, 292-94). South of Silloth, to either side of Beckfoot fort, aerial reconnaissance is claimed to have found further traces of the coastal frontier road, identifiable by its distinctive double ditches (Jones 1982, 295). South of Silloth the running palisade has not been claimed.

It is only fair to say that many aspects of these observations have been doubted in certain quarters (Bellhouse 1989, *passim*). Most of the work described still awaits definitive publication, and in the meantime it is difficult to arrive at a simple assessment of what has been established. The existence of the parallel ditches associated with the frontier system between Bowness and Biglands is generally accepted; but doubt remains about how far beyond Biglands the ditch system has really been seen (Bellhouse 1989, 12-18). Bellhouse (1989, 18-22) has

seriously questioned the observations made at the T4B excavation (centring principally upon the identification of the stone tower), without, however, advancing a convincing alternative explanation for the palisade features. The palisades at Silloth seem difficult to explain in any other way. In short, there is clear evidence for running barriers, of more than one phase, associated with the coastal system, but no sure knowledge yet of how the individually observed sectors relate to one another, or to the other installations: the picture that has sometimes been advanced of a unitary double or single ditch system uniting all of the installations is a premature one. Similarly, the coastal road or patrol track, reported by the antiquaries, seems to have powerful indications in its favour, especially at Silloth, but there is no way of making a general statement of knowledge about its whole course or unitary character.

5.4 The Antonine Wall (Figs 19, 20)

Per legatos suos plurima bella gessit. nam et Brittanos per Lollium Urbicum vicit legatum alio muro cespiticio summotis barbaris ducto (SHA Pius 5, 4)

After the death of Hadrian the decision was taken to advance once again, and to establish a linear frontier on the Forth-Clyde Isthmus. The commencement of the Antonine Wall system is firmly dated archaeologically by RIB 2191 and 2192, mentioning the name of Lollius Urbicus (governor *c*139-*c*143: Birley 1981), both from Balmuildy, one of the primary forts, which was constructed with stone wing-walls in expectation of a stone frontier wall being brought up to join the fort. The reasons for this abrupt change of policy in the early years of Pius will be pondered in Chapter 6. The purpose of the following section is to examine the principal changes that are evident in the way that the Antonine Wall was built and

operated, in comparison to the Hadrianic frontier established only two decades previously.

The curtain itself was built of turves on a cobble foundation throughout, the width of the base varying between 4.30m and 4.90m. Beyond a berm of c6-9m it possessed a formidable ditch on its northern side, of varying dimensions but generally larger (c12m wide by c3.60m deep) in the central sector of the Wall than east of Falkirk and west of Kirkintilloch (7-9m wide). In the eastern sector additional defensive features in the form of *lilia* on the berm between Wall and ditch have recently been discovered (Bailey 1990), and raise the possibility that the famous *lilia* north of the Wall ditch at Rough Castle form part of a wider fortification of the frontier curtain rather than being specifically associated with the fort. These features, like the formidable size of the barrier itself, serve to emphasise that during the short occupation of Antonine Scotland the army went to extraordinary lengths to make the frontier difficult to infiltrate or attack.

The question of whether the Antonine Wall possessed a patrolled walk must remain open. In the absence of direct evidence from the Wall itself, the evidence for a wall-walk on the turf and stone walls of Hadrian becomes the most important that we have.

5.4.1 The topography of the new linear frontier

At first glance the course of the Antonine Wall is much more topographic than that of Hadrian's Wall: the Scottish Wall weaves across the landscape, employing a number of re-entrants and sudden turns. Much of this can, in fact, be explained by the different topographical situation. The Wall commences with long and fairly straight stretches as it leaves the Forth, but soon it climbs to run along the front of a ridge of land overlooking the valley of the Carron. The deviations in the Wall's course allow it to adhere to the commanding ridge; this

also had the effect of making the Wall prominently visible from the north. Similarly, the Wall twists and turns in its central sector because of the ridge of hills (Croy Hill, Bar Hill etc.) to be followed and eventually in order to keep itself poised immediately above the valley of the Kelvin. Between the crossing of the Kelvin at Balmuildy and the western terminus of the Wall at Old Kilpatrick, matters are less easily explained. Increasingly in its course west, the Wall is overlooked by the towering Kilpatrick Hills to the north, but this should not explain local peculiarities in its course. Here there was no obvious, meandering eminence of land for the Wall to follow; the landscape is broken and hilly, but in the absence of a clear natural ridge to follow the Romans might be expected to have cut arbitrarily through the landscape. Rather the Wall follows a very sinuous course which takes in some hill-tops (Crow Hill, Castlehill, Golden Hill) but actually leaves out some eminences (just north of Hutcheson Hill). This is reminiscent of the behaviour of the Taunus frontier in Upper Germany. In the German case the possibility that dense afforestation on either side of the frontier rendered a commanding view over the landscape unnecessary has been suggested (4.7S2 above).

It has been pointed out that here and there in all sectors the Antonine Wall, however adapted to the topography, its course could have made more effective tactical use of the terrain if defence against concerted attack had been the main consideration (Hanson and Maxwell 1983, 162). Rather than commanding the very front of eminences, the barrier sometimes lies back, allowing a force having climbed the eminence to regroup before approaching the Wall.

5.4.2 Forts

It has been generally accepted, since the suggestion was first made by John Gillam (1975), that some installations of the

Antonine Wall were originally intended to replicate the arrangement arrived at on Hadrian's Wall as built. As on Hadrian's Wall, in the first scheme for the Antonine Wall (Fig 19) there were to be auxiliary forts at roughly 12km intervals. Of the 'primary' forts, those envisaged in the first scheme, Old Kilpatrick, Balmuildy, Castlecary and Mumrills are all evidently structurally earlier than the curtain. The eastern terminal fort of Carriden is not attached to the Wall, so that its relationship is unclear. Spacing dictates that the remaining primary fort will have been either Bar Hill or Auchendavy. The relationship of the latter with the curtain is unknown. Bar Hill stands detached behind the Great Wall. It has been argued (Hanson and Maxwell 1983, 106) that this indicates that Bar Hill is a secondary fort, on the grounds that had the curtain post-dated the fort it would have been brought up to join its northern corners, thereby saving the duplication of the length of the fort's northern rampart. However, at 1.30ha, Bar Hill would be the largest of the 'secondary' series; at some 1.10ha, Auchendavy would fit better into the generally smaller forts of the secondary series. Bar Hill also has two epigraphically attested garrisons, which, as we shall see (5.5.2 below), is a characteristic of other 'primary' forts.

Between the primary forts, at intervals of roughly one Roman mile, it seems likely that there were placed fortlets allowing access through the Wall itself, in a way reminiscent of the milecastles of Hadrian's Wall. More work is required before the regularity of the series can be proven. Where investigated, these fortlets have always proved to be earlier than, or contemporary with, the curtain of the Wall.

The materials utilised were different from those on Hadrian's Wall, of course; although two of the primary forts, Balmuildy and Castlecary, were built in stone (and the former in expectation of a stone frontier wall), the others, like the

Wall itself, were built of turves, with their principal buildings only of stone.

The structural evidence suggests that it must have been early in the building programme that a dramatic change of plan (Fig 20) brought about the addition of a series of smaller forts to the line of the Wall, in several cases superseding or incorporating one of the earlier series of fortlets. At Rough Castle, although the fort's foundations were structurally secondary to those of the Wall, an undug gap in the Wall ditch, although not directly opposite the fort's north gate, suggests the expectation of a fort here (Hanson and Maxwell 1983, 107). The same is true of Croy Hill, where a culvert from the fort predated part of the Antonine Wall, although the defences of the fort were secondary to the Wall (MacDonald 1932, 247-258). Cadder also exhibits a break in the Wall ditch, opposite its north gate (Clarke 1933, 16). The walls of the fort itself were clearly secondary to the Antonine Wall (Clarke 1933, 9-10). The implied sequence is that the foundation and all or part of the superstructure of the Antonine Wall were built first, and that the ditch was dug later, either in the expectation of the fort being sited here, or even after building work had begun on the fort. At Duntocher, a clear sequence was revealed: first, a free-standing fortlet, built with squared northern corners ready to receive the Antonine Wall; second, the fort, which incorporated the fortlet into one of its sides; thirdly, the Antonine Wall was brought up to incorporate the fort (Robertson 1957). The evidence from these forts is particularly important in showing the likelihood that all of the smaller, 'secondary' forts on the Wall were probably occupied from the date of its initial construction; their addition cannot have taken place in some second period on the Antonine Wall.

5.4.3 Garrisons

The primary forts on the Antonine Wall would each have been large enough to contain a single, whole auxiliary unit, although Castlecary was too small to accommodate the whole of either of the two milliary units attested there. At three forts, Mumrills, Castlecary and Bar Hill, inscriptions record two separate auxiliary units. The order and period at which these should be placed in the forts is discussed below (5.5.2). Briefly, it will be argued that in each case the change of garrison may be associated with the reorganisation of garrisons brought about by the 'secondary fort' decision.

Of the secondary forts, or at least those whose dimensions are known, only three out of eight can possibly have been large enough to hold an entire unit: Cadder (1.10ha), Auchendavy (*c*1.10ha) and Castlehill (*c*1ha). At Castlehill the whole of what is known at other times to have been an equitate unit, *cohors IV Gallorum*, attested at the site, could perhaps not have fitted into the fort. Hanson and Maxwell (1983, 166) make the suggestion that the cavalry element might have been outposted to Bearsden.

The remaining forts can only have held detachments: at Rough Castle (0.50ha) part of *cohors VI Nerviorum* was commanded by a legionary centurion. The presence of a legionary centurion at Westerwood (0.80ha) implies a similar situation. Croy Hill was only 0.60ha in size, Duntocher only 0.50ha.

Several Antonine Wall forts have produced legionary building inscriptions, altars and tombstones. The possibility of legionary detachments garrisoning Wall forts at some time is now usually dismissed (Hanson and Maxwell 1983, 153), and the inscriptions ascribed to the period of the forts' construction. The evidence is as follows:

Rough	RIB 2144	
Castle	Legionary centurion in command of auxiliaries	
Castlecary	RIB 2146 altar to Fortuna in baths by VEX II and VI	
	RIB 2148 altar by soldiers of VI (170s? -Mann 1963)	
	RIB 2151 altar by soldier of VI	
	RIB 2147 altar by VEX...	
Westerwood	Wright 1968	tombstone of wife of centurion of VI
Croy Hill	RIB 2160 by VEX VI to Nymphs	
	RIB 2161 VI building inscription	
	RIB 2162 VI building inscription	
	RIB 2163 VI building inscription	
Bar Hill	RIB 2171 VEX II and XX building inscription	
Auchendavy	RIB 2174-7 series of altars by Cocceius Firmus, centurion of II	
	RIB 2179 II tombstone	
	RIB 2180 VEX II building inscription	
	RIB 2181 II tombstone	
Balmuidy	RIB 2191-2 Lollius Urbicus Building inscriptions, legio II	
Old Kilpatrick	Barber 1971	Centurion in charge of cohors I Baetasiorum

The evidence from Balmuildy and Bar Hill can be adequately explained in terms of the original construction of the forts. At Old Kilpatrick, the attested centurion is explicitly attested as in command of auxiliaries. This is also clearly the case at Rough Castle. The presence of the Westerwood centurion's wife has been taken to imply that he was acting in the role of commanding officer.

However, at the three remaining forts with legionary evidence, there are notable concentrations of inscriptions. At Castlecary soldiers of the VI legion, severally and individually, dedicated altars; detachments of the II and VI dedicated to Fortuna in the fort's bathhouse. There are no legionary building stones here, only an auxiliary record.

At Croy Hill, a vexillation of legio VI dedicated to the Nymphs; the three legionary building inscriptions are also of this legion. At least one legionary seems to have ended his days here (Coulston 1988).

At Auchendavy, a centurion of II Augusta, Marcus Cocceius Firmus, who dedicated a series of altars, is sometimes seen as in charge of auxiliaries. The altars fail to specify this, however, and it is remarkable that a further building inscription and two tombstones that occur at this site are of the same legion.

In theory these records could all have left behind by building parties, who might, perhaps, have to occupy the fort for a short time while awaiting the arrival of its garrison, but they invite an alternative interpretation. The possibility must be considered that, at these three forts at least, legionary vexillations were in garrison at some time.

Taking into account the arguments in 5.5.2 below, the suggested garrison pattern of the Antonine Wall is not divided here into

two periods, Antonine I and Antonine II, but rather into pre-fort decision and post-fort decision periods:

Suggested garrison types before secondary forts added:

Carriden	1.63ha	cohors quingenaria
	7.7 Roman miles	
Mumrills	2.60ha	ala I Tungrorum
	9.2	
Castlecary	1.40ha	detach. coh I Tungrorum
	6	
Bar Hill	1.30ha	cohors I Baetasiorum
	9.3	
Balmuildy	1.60ha	cohors quingenaria
	9.2	
Old Kilpatrick	1.70ha	cohors quingenaria

Suggested garrison types after addition of secondary forts:

Carriden	1.63ha	*cohors quingenaria*
	5.3 Roman miles	
Inveravon	?	detachment
	2.4	
Mumrills	2.60ha	*cohors II Thracum*
	2	
Falkirk	?	detachment
	3.3	
Rough Castle	0.40ha	detach *coh VI Nerviorum*
	3.9	
Castlecary	1.40ha	detach. *coh I Vardullorum* legionary vex. later?

	2.1	
Westerwood	0.80ha	detachment
	2	
Croy Hill	0.60ha	legionary? detachment
	1.9	
Bar Hill	1.30ha	*coh I Hamiorum*
	2.2	
Auchendavy	1.10ha	legionary? detachment
	2	
Kirkintilloch	?	?
	2.6	
Cadder	1.10ha	*cohors quingenaria*?
	2.5	
Balmuildy	1.60ha	*cohors quingenaria*?
	3	
Bearsden	0.90ha	detachment
	1.6	
Castlehill	1ha	detach *cohors IV Gallorum*
	2.1	
Duntocher	0.20ha	detachment
	2.5	
Old Kilpatrick	1.70ha	*coh I Baetasiorum*

The resulting spacing and density of troops, as has often been observed, provides a proportionally much denser coverage than on Hadrian's Wall, where an average 10km interval between Hadrian's Wall forts was punctuated by six or seven evenly spaced milecastles, for very small detachments. Different patterns emerge on the Antonine Wall as completed. In the eastern sector there tend to be two small, secondary detachment forts between every pair of primary, whole unit (or in the case of Castlecary, bulk of a unit) forts. on either side of Bar Hill, one of the detachments may have been legionary. From Cadder westwards, the pattern of units is even more heavily concentrated; not only may there be two adjacent whole units, only 4km apart, at Cadder and Balmuildy, but from there to Old

Kilpatrick the pattern seems to be one of whole unit or bulk detachment alternating with single small detachment. Just as the western sector of the Antonine Wall seems to have been treated differently in its building, so it seems to have been rather more heavily garrisoned in the final scheme. This differential treatment may in part be associated with the existence of an outpost system north of the eastern part of the Wall. On the west side, not only was there no controlled zone to the north, but higher land - the Kilpatrick Hills - loomed very close.

5.4.4 Minor installations and their spacing

It is not clear whether the fortlets continued in use after the decision to build the secondary forts on the Wall, but one possibility suggested below is that the interiors of at least some were cobbled over as a result of the addition of the closely spaced secondary forts. They may have simply become defended watchtower enclosures or points of access to the Wall-top, if the Wall-top carried a walk.

No equivalents of the turrets of Hadrian's Wall have yet been discovered, but certain smaller installations are known to have been attached to the rear of the Antonine Wall. These include the three irregularly spaced enclosures known near Wilderness Plantation fortlet. One excavated example was 6m square, enclosing a slight rampart; no structure was discovered within, nor can the three installations be shown to form part of a regular series, although the excavated example was reckoned to have been built at the same time as the Wall (Hanson and Maxwell 1983b).

Known for longer are the three pairs of 'expansions', or turf projections from the rear of the Wall, 5-6m square, founded on a cobbled base. Pairs lie to either side of Rough Castle, and a further pair west of Croy Hill. Their spacing is irregular,

their purpose unknown, and their relationship to the original Wall-building ambiguous: the Bonnyside East expansion seemed to be of one build with the Wall (Steer 1957, 164), while one of the Croy Hill pair was secondary (AWR 1899, 79).

Although the irregularity of spacing of both sets of features has been taken to show that they cannot have formed a regular series (Hanson and Maxwell 1983, 98), it may be recalled that installations on other frontiers, such as the German watchtowers, were not spaced according to any regular scheme. Until more examples are discovered, however, it is impossible to say whether the installations in question formed part of a regular series along the Antonine Wall, or even whether there was any such system of minor installations at all. The point has been made that timber towers incorporated into the superstructure of the Antonine Wall could have escaped detection, and in the absence of archaeological evidence this must remain a matter of uncertainty.

5.4.5 Communications system

In contrast to the system we have surveyed in the earliest stages of Hadrian's Wall, on the Antonine Wall a substantial road was built, from the beginning, to run along the actual frontier line. Its early place in the sequence is established by the sealing of a quarry pit for the Military Way by an expansion bonded with the Wall curtain near Rough Castle (Steer 1957, 164).

The reason for the failure ultimately to replicate the Hadrianic system probably lies in the different topographical situation and circumstances of development of the Scottish Wall. This frontier was built all in one go, *a novo*; in contrast Hadrian's Wall had inherited the pre-existing communication line provided by the Stanegate. Similarly, the Stanegate followed one clear line, the valleys south of Eden,

Irthing, Whin Sill and Tyne, while Hadrian's Wall, by its very nature, took the high land and the line north of these landmarks. On the Antonine frontier, Wall and road alike followed the most obvious line from coast to coast across the Forth-Clyde Isthmus.

The relationship of the road to particular forts makes it clear that there was both traffic which passed from fort to fort (presumably of a service, supply and ceremonial nature) and also arterial traffic which needed to move rapidly along the frontier without stopping at all forts: at Cadder, for example, while the Military Way comes up to the south gate of the fort, a loop branches off to by-pass it to the south (Clarke 1933, 7-8).

5.4.6 Outposts

The old road which had been held in Flavian times, running north via Camelon, Ardoch and Strageath, and following the line of the Gask between the Highland fringe and the fertile Strathearn and Fife peninsula, was held again as a road running to outpost forts north of the Antonine Wall. The Antonine structural history of the three forts is discussed below. The northernmost known Antonine outpost lay at Bertha, on the Tay.

5.5 The Chronology of the British Frontier Walls

Two of the most trustworthily dated archaeological events on the northern frontier in the second century are the building of Hadrian's Wall in the 120s and of the Antonine Wall in the 140s. The establishments of these successive frontiers form the essential datum points of the first half of the second century, possessing, in matters such as pottery-dating, an importance not confined to frontier studies. It is with regard

to the relative chronology of the two walls after *c*140 that problems set in.

Recent views about the role of the British walls have been influenced as much by the relationship between the two walls as by the archaeological evidence of the individual installations. The generally held view is that Hadrian's Wall was abandoned *c*140 in favour of a heavily garrisoned Antonine Wall, then reoccupied about 158 upon withdrawal of troops from Scotland and the Antonine Wall. Almost immediately, however, troops returned to Scotland, though the northern garrison was thinner than before. This second, brief occupation of the Antonine Wall is now generally supposed to end at some date early in the reign of Marcus Aurelius, Hadrian's Wall then being reoccupied.

5.5.1 Two Antonine Periods in Scotland

The basic evidence for the theory of two distinct Antonine occupations of the Antonine Wall, and Scotland in general, is archaeological and epigraphical:

'Most of the Roman forts in Scotland which have been examined, including those on the Antonine Wall, have provided evidence of two distinct periods of occupation...These are attested either epigraphically...or structurally...' (Hanson and Maxwell 1983, 137).

This was a state of affairs universally accepted by Macdonald's time. The origins of this idea are now largely forgotten, though fascinating to reconstruct. This will be deferred until the archaeological evidence lying behind the belief in two general Antonine periods in Scotland has been thoroughly re-examined. In what follows, all investigated Antonine sites in Scotland, on or away from the Antonine Wall, will be taken, one by one, and the evidence for multi-period occupation, and gaps in occupation, or destruction or abandonment between

periods of occupation, carefully reconsidered. Only sites where sufficient excavated evidence to form a judgement of the site's history has been recovered are considered. ** denotes a site definitely showing two Antonine structural periods; * denotes a site with less clear cut structural evidence of two periods or two successive Antonine garrisons.

5.5.1.1 Sites South of the Antonine Wall

Barburgh Mill

Breeze (1974, 143-4) showed that there was evidence for only one structural period in this Antonine fortlet. He concluded that this single occupation must have lain within Antonine I.

Birrens

James Barbour's excavations of 1895 produced evidence of 'primary' and 'secondary' periods (Barbour 1896, 113-199); it was left to Macdonald (1923, 80-81) to associate these with the epigraphically attested units at Birrens, using RIB 2110 to argue that *cohors II Thracum* had reconstructed the fort in 158 when replacing the preceding unit, *cohors I Nervana Germanorum*. Further excavation in 1936-37 and 1962-67 (Robertson 1975) confirmed that the Antonine fort at Birrens had been burnt and, in a distinct second period of occupation, wholly replanned; occupation continued at least into the late second century. Thus the evidence for two Antonine periods at Birrens is unequivocal; their duration however, long exceeds the time when - according to the orthodox chronology - the Antonine Wall was still being held.

Bothwellhaugh

The results of excavations at this fort by J M Davidson in the 1930s were taken to show two periods of Antonine activity: a rampart-back oven was found to have been overlain by a 'ramp' whose make-up contained much broken tile from a demolished building. This was the sole support for the statement that Bothwellhaugh, 'as at other forts in southern Scotland' may have had two Antonine occupation periods separated by a destruction (Miller 1952, 187). Later excavation in 1967-68 showed a localised extra revetment of turf on the northeast rampart (Maxwell 1975, 24-5) and other localised repairs to the rampart; two Antonine periods were postulated on the basis of an internal timber building (1975, 27-8) and a resurfacing of an internal street (1975, 25-27). However, no general alterations were found to have occurred in the ramparts or ditch systems, and the areas examined were tiny. The ramp of material seen by Davidson over the back of the southeast rampart was interpreted as an *ascensus* (RCAHMS 1978, 121). While this material - which had derived from a hypocaust - may have come from the external baths, there is no warrant for assuming that this happened at the end of an 'Antonine I' period. The external baths, once thought to display 'two structural phases' (RCAHMS 1978, 121) proved upon complete excavation rather to show a complicated multiplicity of alterations, falling into three main phases of activity (Keppie 1981, 68-70).

Broomholm

On the basis of excavation in 1961-64 an Antonine occupation of this site is not thought likely (Wilson 1965, 202; pers. comm. C M Daniels).

Burnswark

The Antonine fortlet at Burnswark is not known to have had two periods of occupation. The later use of the hillfort as a military training ground could have been of extended duration and therefore would not fit easily into the supposedly brief 'Antonine II'; it could as well go with the holding of Birrens as an outpost fort of Hadrian's Wall (Jobey 1978, 78-80; 98-99; Breeze 1982, 145).

****Cappuck**

This site was apparently reoccupied during the Antonine period of activity in Scotland; it is said that in the course of the Antonine period the fortlet was reduced in size from 0.73 to 0.61ha. Modifications were made to the ditch system and to internal buildings (Stevenson and Miller 1912, 46; Richmond 1953). Here, then, is an Antonine fort unmistakeably displaying two distinct periods; it was concluded, however, that occupation had extended beyond the mid-Antonine period. The epigraphic evidence (RIB 2117; 2118) from nearby Jedburgh Abbey, if associated with Cappuck, hints at use of the site during the third century.

Carzield

The report on the small-scale excavations undertaken at Carzield just before the second World War shows that by this time excavators were approaching Antonine forts in Scotland with the expectation of finding two Antonine periods. At Carzield, despite the efforts of the excavators, the evidence for two distinct periods failed to come convincingly to light.

A section through the eastern defences revealed 'ditches and rampart... and an *intervallum* road. The road, however, had two

distinct levels, though it was not clear that these marked a definite break in occupation'. A further section on the southern defences revealed a '25 foot *intervallum* road of river cobbles' in which no evidence for more than one level was noted. Exploration of a stone barrack within the fort revealed no evidence of more than one period (Birley and Richmond 1942, 158-60). The possibility of two Antonine periods was therefore later proposed in rather muted tones: 'Either Carzield was abandoned *circa* 160, after an occupation of only twenty years at the outside... or, like most other Antonine sites in Scotland, it was re-occupied (after a break of indeterminate duration) shortly after the middle of the second century, and the higher road level represents the sole surviving structural evidence of that break'. The possibility had to be conceded that 'Carzield fort...shows only one main structural period, and no later re-occupation' (Birley and Gillam 1946, 69; 78).

Castledykes

It has been said that 'After a brief period of abandonment at some time in the decade AD 150-160...the fort was reoccupied with only minor alterations to the defences and a certain amount of internal reconstruction or repair' (RCAHMS 1978, 127).

In fact, none of the results of the excavations of 1937-1955 provides direct evidence for two distinct and general Antonine periods; no evidence, direct or indirect, has provided the remotest support for the notion of a period of abandonment within the Antonine history of the fort. The only activities that could be ascribed to Antonine II, after the supposed brief period of abandonment, were: a reduction in the rampart opening at the north gate; the laying of a new *intervallum* street; the rebuilding or strengthening of limited parts of the headquarters and granary; and possible alterations to the ditched enclosure or annexe on the east side of the fort. No

other changes to the defences or the layout of the internal buildings were noted (Robertson 1964; RCAHMS 1978, 124-27). None of these recorded alterations would be out of place within the routine upkeep and maintenance of a fort under continuous occupation in a single period.

Cramond

As a result of excavation in 1954-66, it was stated that: 'First construction was of the time of Antoninus Pius, c140. There was a second Antonine occupation' (Rae and Rae 1974, 163). A third major, Severan, period was suggested for the site.

It is worth examining the evidence for two distinct Antonine occupations in detail. It was found that 'Wherever cut through, all *intervallum* roads had two separable phases of construction. In the earlier they were surfaced with small blue cobbles...In the later they received an additional thickness of about 6 in. of a much coarse cobble mixed with stone fragments and sometimes broken flagstones...' (*ibid.*, 173). However, as the later of these surfacings should represent the Severan occupation, it is clear that only a single general period of Antonine activity could be observed in these roads. The *via principalis* had been widened by *c*3m in the coarser (Severan) second general street surfacing. Crucially for the excavators' argument for Antonine I and II, the street had been widened 'To incorporate and cover walls, gutters and floors of two earlier phases' (*ibid.*, 174).

In the headquarters building, 'the north wall displayed two periods of construction...If the primary wall is Antonine I, the repair is presumably Antonine II, since it follows the usual pattern of a repair of the existing public buildings' (*ibid.*, 176). Three successive mortar floors within the headquarters were assigned to Antonine I, Antonine II and

Severan. There was no dating evidence to support this supposition, and no reason was advanced to preclude a single Antonine phase in the headquarters being followed by a Severan reconstruction, bringing with it two successive mortar floors. If the fort was empty between the Antonine and Severan periods, Severan reconstruction in the headquarters might be expected; but this cannot be the case if both of the major observed periods are confined to Antonine times.

A store-building west of the headquarters, said to be the earliest structure on its site, showed no signs of modification; nor did a neighbouring fragment of a building, possibly the *praetorium*, which, while said to be the first on its site, contained a drain which was contemporary with the second ('Severan') *via principalis*. The only other central-range building investigated, a granary, displayed no more than one period (*ibid.*, 178-80).

In the *praetentura*, a workshop (Block B), standing at the end of the life of the fort in the early third century, was seen to overlie two earlier periods of activity, which accordingly were assigned to Antonine I and Antonine II. The earlier two phases occupied a wider area than the 'Severan' building, and had in part been sealed by the Severan widening of the *via principalis*. Only the second phase was represented by observed walling; the first consisted of an area of flagging associated (without direct stratigraphical relationship) to features of workshop type, which may just have well related to the observed Severan Block B. The walling overlying the flags 'is therefore secondary in the fort's history; and...may be called second Antonine' (*ibid.*, 183). While it is of great interest that earlier features on a different alignment from the latest buildings were observed, it may be questioned whether the fact that, within this particular building plot they exhibited at least two phases of activity, really warrants the application of a general Antonine I and II period division to the whole fort.

In Block A, which looks as if it should be a back-to-back contemporary of its Severan neighbour Block B to the south, but is said to be the earliest building on its site, it is simply said that 'two levels of Antonine occupation were distinguished in places' (*ibid.*, 186). The building was not seen to have had two clear structural periods before it was reconstructed and part of it sealed by the enlarged 'third period' (ie Severan) *intervallum* street (*ibid.*, 186-87).

Of other areas investigated, a latrine, while showing several phases, was not interpreted in terms of Antonine I and II. In the west *praetentura*, a bath-suite was encountered, but nothing was understood of its date or history. In the *retentura*, two parallel barrack-like buildings were investigated and thought to show the expected three phases (Antonine I, Antonine II, Severan); however, although the walls of the building showed evidence of repair, it appears that the same structure was in use throughout. As elsewhere in the fort there was no structural indication of an interval between Antonine and Severan occupations (*ibid.*, 187-190).

**Crawford*

It was established in excavations in 1961-66 (Maxwell 1974) that in the Antonine period, this fort, showing Flavian and Antonine occupation, was increased in size from 0.80ha to 1.10ha, by rebuilding its north and south ramparts some distance further out, over filled preceding northern and southern ditches. The north and west entrances of the superseded ditch system related to the Antonine rather than the Flavian street system of the fort, proving that the expansion of the fort superseded an earlier Antonine arrangement rather than a second Flavian period.

It was reported (Maxwell 1974, 176) that 'In general the layout of the fort was unchanged [in Antonine II], but whereas the

earlier Antonine principal buildings remained in use with only minor modifications, the barracks were now extended' to a length of c25m. The lengthened barracks were used to postulate a change of garrison.

Thus Crawford has produced unequivocal evidence of a change in the Antonine period. Two observations are necessary, however. The second Antonine phase did not amount to a general replanning or reconstruction of the fort; all of the buildings remained in use, with no alterations in the central range. There was no hint of the briefest of abandonments between Antonine I and Antonine II. There is nothing to preclude the possibility that the enlargement of the Antonine fort and its barracks represented a change of plan during the construction of the site.

Durisdeer

This Antonine fortlet of 0.19ha on the road from Nithsdale to Crawford was excavated by J Clarke in 1938. The only evidence which could be adduced for the expected two structural periods was 'the overlapping of some of the [internal building] post-holes, along with differences of size and irregularity of spacing...' (Miller 1952, 126); nothing necessarily signifying more than the routine alterations and maintenance to be expected within a major occupation period.

Glenlochar

Trenching shortly after the second World War (Richmond and St. Joseph 1952, 11-12) revealed three periods in the fort's defences. 'While the second and third forts are plainly a modification of one another, there is the clearest evidence that the first and second forts are separated by a disaster'. The *intervallum* street was seen to have two structural phases,

coinciding with phases 2 and 3 of the defences (Richmond and St. Joseph 1952, 6-7). It was no doubt tempting to associate the second and third 'periods' with Antonine I and II; however, trenches cut into the interior told a different story. Here (Richmond and St. Joseph 1952, 6-11), only two major periods of fort buildings could be found: Flavian, and a single Antonine period. A third level alluded to in the fort's interior on p.12 seems to refer to some non-regular fort buildings which preceded the known Flavian fort. Against this background the modifications to the defensive system interpreted as a third phase may simply have represented repair or maintenance during the Antonine occupation, as at Bothwellhaugh.

Inveresk

The fort at Inveresk was investigated in a series of keyhole trenches by Richmond in 1946-47. It was revealed that a (stable?) building 'was not the first structure on the site. The masonry of the wall was laid without the normal foundation, directly on top of a road surface...the west wall [of the same building] also covered earlier structural remains' [in fact the foundations of a stone-built granary] (Richmond 1981, 286-304). The established fort was stated to be 'purely Antonine', the presence of Flavian finds being taken to suggest Flavian occupation away from the known site.

Here is apparently unequivocal evidence for two clear and quite distinct Antonine periods, or at least two periods of later than Flavian date. But the degree of difference between periods in the small area examined is itself of great interest; it is quite unusual in comparison to the normally claimed Antonine I and Antonine II distinction, where it is usual for the general plan and many of the buildings within it to be considered to have survived into the second period. The evidence from Inveresk begs the question whether rather than two mid-Antonine periods, the fort (like, for example, Birrens

or Newstead) in fact went into a major second Antonione period which ran down into the late second century - or beyond. There is one tantalising piece of evidence to support this: the pottery from the fort was said (Richmond 1981, 302) to be all Antonine, yet included (Richmond 1981, 301) a BB1 cooking pot with slightly (100 degrees) obtuse angled lattice; the earliest context for pottery of this type elsewhere are the construction levels of stone fort 2 at Vindolanda, *c*223-5 (Bidwell 1985, 174-76). In general, given the minute amount of material recovered from the fort at Inveresk, there seems nothing to preclude the possibility of a long or resumed later second century or Severan occupation of the sort attested at Cramond.

Recent excavations in the extra-mural settlement at Inveresk have not been published in detail. One area of the settlement examined was said in 1977 to show two Antonine periods (Frere 1977, 365-67), but by the following year (Goodburn 1978, 416-18) three phases had emerged. All of the dating evidence was said to be Antonine.

It is clear that there is much to be learned about this important and possibly long-lived site, and that the very limited knowledge of it that there is gives little warrant for assuming a simple two-period sequence confined to the mid-Antonine period.

Loudon Hill

Excavation between 1938 and 1946 revealed that a *c*1.20ha Antonine fort had succeeded a Flavian fort of several periods. The Antonine buildings were partly explored and found to represent only one period. 'The relatively small quantity of Antonine pottery suggested that the occupation was not prolonged' (Taylor 1947, 165-66).

Lyne

Excavation between 1959 and 1963 showed unequivocally that the Antonine fort at Lyne was of single period. 'Nowhere [in the investigated buildings] was there any hint of more than one period of occupation'. The defences told the same story. The excavators concluded that 'the fort was built at the time of the late Antonine re-occupation of Scotland, immediately following the Brigantian revolt of AD 155-8' (Steer and Feachem 1962, 213). Immediately next to the fort, however, a fortlet is known; Steer and Feachem reckoned that it perhaps represented the 'missing' Antonine I occupation, preceding the Antonine II fort. More recently, the fortlet has been seen as an Antonine II successor to the fort (Hanson and Maxwell 1983, 148). In fact, beyond its Roman character, nothing is known about the date of the fortlet. It has produced no finds and there is no knowledge of its internal structures. Its Antonine date is based solely upon the known use of fortlets in southern Scotland in the Antonine period; there is nothing to preclude a Flavian date for this example (Steer and Feachem 1962, 215-17). Given this lack of knowledge, it would seem dangerous to assume that fort and fortlet necessarily represent (in whatever order) the respective Antonine occupations of Scotland; even if it is an Antonine site, the fortlet may have had a short-lived occupation; the change of site-type here could easily have stemmed from some local factor unconnected with other sites in Scotland.

Milton

This key site in Annandale was first excavated in 1938-39, evidently in the expectation of finding Antonine I and II occupation periods. South of the Flavian forts was found a fortlet of Antonine date, assigned two periods on the basis of cobbles with associated post-holes sealing timber features on Antonine date, and two levels of cobbling in the gateway

(Miller 1952, 105-6). However, the difficulty in assigning these phases to Antonine I and II is illustrated by the fact that in the south side of the fortlet it was thought that there were three phases of occupation (Miller 1952, 106-7). A further complication is provided by the fortlet to the north, lying within the Flavian forts, supposed to display two periods and dateable to the second century on the basis of what would now be recognised as either BB1 or BB2 associated with its occupation deposits (Clarke 1949, 140-47). Thus, all that can be said of Milton is that it enjoyed a complex second-century history, making successive use of at least two multi-phase fortlet sites.

****Newstead***

Unequivocally of two Antonine periods, the important military complex at Newstead has been a 'type-site' for Antonine I and II. Here Richmond made the famous observation (1950, 14) that there cannot have been a long gap between the two Antonine occupations of the site. As at Birrens, the second Antonine fort at Newstead had a history running down to the end of the second century.

****Outerwards***

Excavation of this fortlet associated with the supervision of the western coastal flank south of the Antonine Wall carried out in 1970 appeared to show unequivocally that the defences and buildings within had enjoyed two general structural periods. The first period evidently ended in a fire. Furthermore, evidence of several superimposed lines of vegetation growth intervening between the two periods of activity led the excavator to estimate that the fortlet must have lain empty for between five and ten years (Newall 1976, 117).

F. Newall (1976, 121-22) rightly observed the intimate connection between this coastal fortlet and the Antonine Wall system. He wrote: 'It follows that the history of the outlying fortlets essentially reflects that of the main barrier. Outerwards...evidences two periods of occupation. Hence the Antonine System, as primarily conceived, should also have been twice occupied...On the assumption that Antonine I ceased cAD 154 reoccupation cAD 163 would seem possible'.

There are, however, obvious difficulties with this simple reading of the history of the Antonine Wall from the structural history of one fortlet. It is highly suspicious that the evidence for a prolonged gap between occupations is paralleled neither on those Antonine Wall sites which show two periods or on other two period Antonine sites in Scotland; one possible conclusion to draw is that Outerwards simply had a history which did not reflect that of all other sites. The dateable pottery from the site occurred in very small quantities and provides no indication of how long the site was held. Of course, there is no way of proving that the two structural periods observed do not reflect a general Antonine I and II in Scotland; but it must be conceded that other possibilities remain. One would be that the fortlet was abandoned as superfluous shortly after the building of the Antonine Wall system, and later found necessary and re-occupied.

Raeburnfoot

Excavation in 1959-60 showed that the visible fortlet (0.64ha) was Antonine and of single period. This was enclosed within an outerwork encompassing 2.12ha, previously thought to be an earlier (Flavian) fort. The 1959-60 excavations showed that the outer work did not include buildings, was irregularly planned, and included marsh land; it was suggested that it was a construction camp, annexe or outwork of some other kind

connected with the small Antonine fort, which was unequivocally of single period (Robertson 1962, 45-6).

Wandel

Excavation of this Antonine fortlet (RCAHMS 1978, 136) produced no evidence for more than the briefest of occupations.

**Whitemoss*

Excavations here between 1949 and 1954 have never been published in detail. From the interim reports, however, it seems that, as at Outerwards, the excavator (F. Newall) found clear evidence for more than one Antonine period. The fort had at some time perhaps been reduced or enlarged in area (Taylor 1950, 9-10); at some time, in the *retentura* of the fort, a complete replanning took place (Taylor 1955, 123). The headquarters building was observed to have three timber structural phases (if we discount an earliest phase consisting 'only of pits'), the second ending in destruction by fire (Taylor 1954, 86). Elsewhere, the excavator has associated the final of these phases with a Severan occupation (Newall 1976, 122), but this seems merely an attempt to conform to the now unfashionable notion of a brief Severan re-occupation of the Antonine Wall. More significantly, despite the observed rebuildings, the headquarters seems to have retained the same plan throughout.

5.5.1.2 Sites on the Antonine Wall

MF Kinneil

Completely excavated in 1981, this fortlet has produced no evidence for more than one period of occupation (Keppie 1982, 97-98).

**Mumrills*

Two separate auxiliary units are attested here:

ala Tungrorum (RIB 2140), on an altar; *cohors II Thracum* (RIB 2142), on a tombstone.

Besides the epigraphic evidence, there are structural indications, derived from the excavations of 1923-28 and 1958-60, often put forward to argue for a two (formerly three) period history of the site:

1. The first headquarters to be built was replaced by another, considerably smaller (Macdonald and Curle 1929, 426-28). To Macdonald (1934, 202), this signalled the general destruction which Antonine Wall sites were supposed to have suffered at the end of the first Antonine period; the headquarters was considerably altered in a third phase.

2. The first, timber, commanding-officer's house was found to have been destroyed by fire and to have been replaced by a larger stone house (Macdonald and Curle 1929, 436-38).

3. Trenching revealed several structural periods within the barracks; no overall plans were recovered (Macdonald 1934, 199).

4. The defences seemed to have been completely rebuilt at certain points, a culvert running under the fort rampart, for example, containing re-used material. The outer of the four ditches south of the west gate of the fort was said to contain 'three occupation layers, each separated from the one above it by a sprinkling of pottery fragments... at one point a cobbled road had been laid across it' (Macdonald 1934, 198). 'It is thus clear that the fort had been twice abandoned and twice re-occupied before the final withdrawal, and that on neither of the occasions when it was re-occupied had it seemed worthwhile clearing the débris out of this particular ditch' Macdonald and Curle 1929, 420-21).

Steer's excavations of 1958-60 resulted in the following conclusion: 'Macdonald concluded that the Antonine fort was twice destroyed and twice rebuilt before it was finally abandoned towards the end of the second century. The results of the 1958-60 excavations seem to be entirely in accord with this opinion' (Steer 1961, 97). Steer could, of course, draw no direct stratigraphical links between his work and the buildings inside the fort, but he saw the first break in occupation as marked by possible recuts of the primary inner ditch on the east and west sides of the fort, first observed, but not understood, by Macdonald (Steer 1961, 92-3), and linked this with the destruction of the earliest central range buildings. Re-excavation of the outer of the quadruple ditch series on the west side of the fort showed that the three phase sequence recorded by Macdonald represented nothing more than a series of tip-layers in a ditch that had been filled in a single operation (Steer 1961, 91). As this was part of a general slighting of all four ditches here, and therefore later than the 'secondary recut' Steer saw this as the destruction at the end of the second period, prefacing the third. By 1964 (Steer 1964, 30-31), Steer had dismissed the evidence for the third period (Macdonald's road over the slighted west ditches, and gravel-quarrying there) as mere preparations for a third period that was not executed.

An overall view of all this structural evidence should make clear the difficulty of associating events in one part of the fort with events in another. The recuts of the defensive ditches, and provision of culverts through the rampart, could represent routine maintenance at any time during the fort's life. It is very dangerous to assume that observed ditch-recuts at points around a defensive circuit are contemporary, and it is salutary to remember Macdonald's description of these ditches: 'The most striking feature about the fort ditches was the lack of uniformity they displayed; there were considerable variations in dimensions and occasionally in design'. In fact, the feature seen by Macdonald, and reinterpreted by Steer as a recut of general significance for the fort's history, was stated to run 'along one stretch, but nowhere else on the whole enceinte' (Macdonald 1934, 198).

The slighting of the ditches on the west side could represent simply the end of the life of the fort, or, if the road recorded running over them is to be taken at face value, they could have been destroyed in order to make way for the well-known annexe on this side of the fort, a possibility considered by Steer (1961, 99 n.1). If this had entailed clearing part of a *vicus*, the evidence of a fire, and pottery in the ditch that had been broken before being burnt, might be explained without recourse to hostile destruction.

This leaves the structural evidence of the internal buildings. The alterations to the commandant's house, as Steer later recognised (1964, 30-31), could all have fallen within one period; the earliest timber structure seems too small to have served as the earliest *praetorium* in a fort of this size, and so perhaps represents an initial temporary structure. The alterations in the headquarters, which certainly seems to have been reduced in size, and the inscriptions the two garrisons, remain as the only good evidence from Mumrills of two distinct

periods of activity. None of the evidence need indicate a break in occupation at the site.

Camelon

At this important Flavian and Antonine site less than a mile north of the Antonine Wall, straddling the major route north to the outposts and suggested (Tatton-Brown 1980) as the principal port of supply for the Wall system, extensive excavations took place at the turn of the century (Christison and Buchanan 1901). They did not provide evidence for more than one period in the Antonine fort. More recent excavation in its annexe ('the South Camp') has revealed various phases of Antonine activity, but no evidence for interruption in the history of the site (Maxfield 1979, 32).

Rough Castle

Following the excavations of 1903 at Rough Castle, Macdonald (1934, 219-26) deduced a three-period sequence in the fort's elaborate annexe. Steer later (1964, 31) dismissed this as 'largely hypothetical'. The 1903 excavations did not otherwise provide indications of two separate Antonine periods within the fort, beyond there being walling of more than one distinct type (Macdonald 1934, 228). Further excavation in 1957-61 disproved the three period structural history of the fort rampart postulated by Macdonald. The more recent excavators were also working with the clear expectation of finding two or three distinct Antonine periods, and were baffled by their own failure to do so. The presence of three phases of *intervallum* street behind the west rampart was 'the most unequivocal evidence of different periods of work within the areas examined' (MacIvor *et al.* 1980, 238). In the *praetentura* there had been an initial semi-permanent occupation of tent-like structures; these were followed by timber barracks. There was

an 'absence of evidence to indicate a second substantial period of barracks' (*ibid.*, 241). To account for the absence of Antonine II, the excavators were driven to postulate that stripping of the barrack area in 1903 'could have removed all traces of a later set of structures' (*ibid.*). They conceded that at Rough Castle there may have been no break between Antonine I and II.

MF Seabegs Wood

Insufficient excavation has been carried out here to be sure whether or not the fortlet has more than one period, though there is a hint that, as at Wilderness Plantation, its interior may have been cobbled over (Keppie and Walker 1981, 143-49; 160).

**Castlecary*

The old excavations at Castlecary (stone 1.40ha) produced no structural evidence for re-construction that could not easily be assigned to piecemeal repair, maintenance or changes within limited areas of the fort (Christison and Buchanan 1903, 304-6; Macdonald 1934, 241-52). Consequently, the only evidence for the assertion that there was more than one Antonine occupation of the site has been the occurrence of inscriptions naming different auxiliary units:

RIB 2155: Antonine building inscription of *cohors I Tungrorum*: it may specify their milliary strength

RIB 2149: Undated altar to Neptune of milliary (specified) *cohors I Vardullorum* under a prefect

In addition there are altars (RIB 2146; 2148; 2151) dedicated by legionary vexillations, and one (RIB 2152) dedicated by

'...Brittones'. Of the two milliary auxiliary units, Hanson and Maxwell (1983, 153-55) have preferred to place the *Vardulli* in the 'first' period, on the assumption that primary building work would be legionary, and that the Tungrians must therefore have been involved in an 'Antonine II' rebuild; this goes back to a point originally made by Steer (1964, 26). In truth no overall re-building programme in the fort was detected; there is no reason why an elaborate building inscription such as RIB 2155 may not belong to the initial building of the fort.

Croy Hill

Excavation by Macdonald in the 1930s was claimed to have revealed the then generally expected three Antonine periods (Macdonald 1936) in headquarters, granary and *via principalis*. In fact, the headquarters (preceded by two post-holes) had undergone limited rebuilding. An adjacent stores building had undergone alteration at some time; later its site was cobbled over. The *via principalis* was resurfaced on at least two occasions. It will be evident that these alterations could, in theory, be confined to the span of a single occupation period, and do not amount to proof of a general destruction of, or abandonment of, and then later re-commissioning of Croy Hill.

**Bar Hill*

As at Castlecary, the weight of evidence for Antonine I and Antonine II at Bar Hill rests upon the epigraphic record of two auxiliary units:

RIB 2167; 2172: *cohors I Hamiorum*.
RIB 2169 (altar); 2170 (Antoninus Pius building inscription): *cohors I Baetasiorum*.

Bar Hill was excavated at the turn of the century (Macdonald and Park 1906), and more recently; in particular the headquarters building has undergone careful re-examination. While this building clearly underwent alteration, it was never replanned, and there is no evidence for any break in its occupation (Keppie 1985); this conclusion rests for the fort in general. As Hanson and Maxwell (1983, 139) state: 'Indeed, were not two units attested at Bar Hill, the structural changes evident would barely warrant the assertion of two distinct periods of occupation'.

The order in which the two attested units garrisoned the fort has long been disputed. The Baetasians have been seen as the earlier unit on the strength of their building inscription, but it has been conversely argued that a legionary building stone (RIB 2171) marks the original construction of the fort and that the Baetasians' tablet must therefore represent reconstruction within the reign of Pius (Steer 1964, 26-7). The Baetasians' building inscription and an altar from the *aedes* naming that unit was deposited in the headquarters well at the time of the final demolition of the fort, but this need not necessarily show that they formed the final garrison (see below).

Cadder

Excavations at Cadder in 1929-31 (Clarke 1933) were taken to show clear evidence of the three then expected Antonine periods. Looking again at the excavation report of this now lost fort, it is clear that the site had undergone complex changes and certainly displayed more than an obvious short single period of occupation. It was in the area identified as that of the commandant's house that Clarke recovered a clear sequence of three buildings, one of stone succeeded by two of timber (*ibid.*, 44-48). Whether these remains really represented three successive *praetoria* is questioned below. Clarke believed he had uncovered a parallel sequence in the

fort baths (*ibid.*, 53-60); it is now generally recognised that bath-houses were prone to modification and need not reflect the structural history of a fort (Steer 1964, 34). Elsewhere, there had been at least two periods of building in the barracks, although the layout of the buildings themselves did not seem to have changed (Clarke 1933, 49).

North of the granary (which displayed only one period), in the central range, building IV, of uncertain purpose, had undergone much alteration (*ibid.*, 43) before being riddled with pits associated with an adjacent workshop (Building X) which itself had experienced at least three phases.

All of this amounts to a fort whose timber buildings had to be altered on various occasions, but whose alterations need not necessarily be associated with each other in general phases. One stone building was demolished to make way for timber successors. Most telling of all is the headquarters. In order to obtain the three requisite Antonine Periods, Clarke postulated (*ibid.*, 36) a first [Antonine I] headquarters which had completely disappeared; the only surviving features he could associate with this period were some pits which predated the visible *principia*. Steer (1964, 33) rightly saw that these pits are more likely to have been pre-fort or 'proto-Antonine', quarry pits or such-like. But Steer was determined to cling to Antonine II (his intention being, by disposing of one of Clarke's periods, to show that there was no evidence for a third period): 'In this case the signs of reconstruction observed must relate to Antonine II...' However, Clarke's original account makes it quite clear that the evidence for Antonine II in this building is equally chimerical: 'Except where subsidences had taken place into previous pits...no traces of reconstruction were observed. Elsewhere the footings... showed no differences of masonry and lay consistently on the same level' (1933, 35-6). It was this evident single period character of the building which persuaded

Clarke that there must have been an Antonine I predecessor that had completely vanished.

Thus, while some building plots saw successive rebuildings, there is no evidence that Cadder ever had a break in its occupation, or that there was ever a general rebuilding of the fort. Nor is there convincing evidence of disaster overtaking the fort between the supposed occupations. Much was made of the burnt masonry which packed the post-holes of the second-phase timber building on the commanding officer's house site; however, this could easily have derived from a demolished hypocaust in the preceding building. The burnt daub noted in the barrack areas was deposited only at the end of the life of the fort.

If a general change in the fort is to be suspected, it must be that it was largely turned over to industrial activity, a conclusion hinted at by Clarke (*ibid.*, 89). Not only was there the unusually extensive industrial activity in the area of sites IV and X by the end of the life of the fort; the same was true now or earlier in the northern half of the *praetentura* (*ibid.*, 51). The headquarters was turned over to industrial use, as the presence of a feature in the courtyard, intepreted by Clarke as a cistern but obviously a large hearth or kiln, shows (*ibid.*, 37). Finally, the buildings replacing the stone *praetorium*, while conforming to a courtyard plan, had several anomalies which raise the suspicion that here also we may be dealing with *fabricae*. These include an absence of partitions; an open range on the north containing pit or water tank and burnt areas; an unexplained drain in an open area in south range of the building (*ibid.*, 47-48). Thus far from being a fort which shows abandonment and reoccupation within the Antonine Period, Cadder may be interpreted as a site of a single major period which was at some time denuded of some or all of its garrison and turned over to industrial use.

**MF Wilderness Plantation*

Excavation in 1965-66 showed that in a second phase the timber structures inside the fortlet had been cobbled over. Two hearths apparently remained in use in the second period of occupation; no alterations were noted in the ditches or the excavated gate (Wilkes 1974).

Balmuildy

Excavated in 1912-14, Balmuildy was taken to show the expected three periods (Miller 1922, 104-5). The evidence for the sequence of three periods separated by two destructions was, however, drawn exclusively from the internal bath-house of the fort (Miller 1922, 41-47). There was no evidence of more than one period in the defences, and the other buildings excavated within the fort were essentially of single period: the headquarters and commanding officer's house showed only minor alterations. It is interesting that Steer (1964, 34), dismissing Antonine III but still anxious to find evidence for Antonine I and II, selected that part of Miller's report which gave the Commandant's House '...two periods, separated by a destruction'. Reference to the original report (Miller 1922, 31) shows that this 'destruction' was an inference based solely on the fact that a room had been enlarged: 'It is highly improbable that such fundamental reconstruction would have been undertaken merely to gain a few feet of extra space. Here it looks as if occasion for rebuilding had been given by the destruction of this part of the building'. Similarly in the headquarters, 'destruction' is inferred from the insertion of a storehouse and the fact that the front wall of the rear range did not sit squarely upon its foundation: 'The rebuilding of this wall upon the original foundation implies destruction and not mere alteration of plan' (1922, 25). The fort's street and drainage system (1922, 40-41) was also taken to show evidence of more than one period; although there was apparently nothing

that might not be the product of routine repair and maintenance within a given period of occupation. More recently, L Keppie (1976) has shown that a gate inscription at Balmuildy will have stayed in place during any supposed break between Antonine I and II.

Bearsden

The recent excavation by D J Breeze of this secondary Wall fort is not yet published in detail, but it has been clearly stated that the fort had only one period of occupation (Breeze 1984).

**Duntocher*

Excavation in 1947-51 (Robertson 1957) revealed that this small secondary fort's internal buildings had enjoyed more than one phase. There was no evidence for a general abandonment and rebuilding, and all of the observed structural alterations could be accounted for in terms of repair, maintenance and change during a single general occupation.

**Old Kilpatrick*

Excavated in 1923-24, the most western of the 'primary' Wall forts was supposed to produce evidence of the usual three Antonine Wall periods (Miller 1928, 55-59). On close scrutiny, however, the evidence for this assertion is open to question. The clearest evidence for two structural periods which could be advanced was from the headquarters building. Here a lower, earlier cobble foundation underlay parts of the cobble foundations in the rear range of the known, and therefore supposedly second period, headquarters (Miller 1928, 25-6). At the southwest corner of the headquarters (1928, 27) the 'secondary' foundation was overlain by a further cobble

foundation which was the sole evidence that could be adduced for a third period. However, it does not seem that three levels of foundation were seen here, so perhaps the same two stage sequence seen in the rear range was being observed. Taken at face value, this evidence should mean that the headquarters was at some stage rebuilt from its foundations (although it may be noted in passing that multi-stage cobbled foundations are an attested structural technique, while examples of aborted foundation layouts are well-known). In support of the theory of rebuilding, the excavator associated the second stage foundation with the raising of the forecourt surface and the doing away with a timber colonnade there (1928, 25). All of this could as well be accounted for by a routine rebuilding programme during the life of the fort, as may have happened if a timber headquarters (on stone sill-walls) had been rebuilt with a wholly stone superstructure.

The same could be said of the barracks, where two different construction techniques - sleeper-beams and post-holes - were taken to signify two periods of construction (Miller 1928, 16). The excavators failed, however, to distinguish two separate plans; such variations in construction technique might easily represent piece-meal repair or rebuilding and in any case it is not unknown for them to occur in the same building. Significantly, however, clear evidence was recorded that two barracks had at some time gone out of use and their areas become covered with metalling (1928, 16-17).

The latrine in the southeast corner of Old Kilpatrick was also seen as providing 'an index to the structural periods of the...fort' (Miller 1928, 28). The original walls of this building were overlain by the foundations of an enlarged building which had superseded the latrine. The excavator thought in terms of a violent destruction of the phase 1 latrine; however, it is noticeable that the succeeding building seems to have been used for occupation rather than as a latrine (1928, 29). The original latrine had been founded below the

level of the rampart, presumably in order to tap into the drain exiting the fort at this point; the building may simply have been raised because its function had changed and it no longer needed to be at the same level as the culvert.

As at other Antonine Wall sites, then, there is clear evidence of much activity, building work and alteration at Old Kilpatrick, but it is not possible to show that the alterations are all related and belong to a second general building period. Rather the picture is one of a site with much activity taking place, where certain buildings (not necessarily at the same time) changed their functions or were done away with.

5.5.1.3 Sites north of the Antonine Wall

Of the known outposts north of the Antonine Wall, Ardoch, Strageath and Bertha, only the former two have received sufficient excavation to shed light upon the nature of their Antonine occupation.

Ardoch

Ardoch, occupied in both Flavian and Antonine times, is conventionally explained as having had two distinct Antonine periods (after Crawford 1949, 38); the visible defences of the fort are said to be too constricted to be contemporary with internal timber buildings, detected in the excavations of 1896-97 (Christison *et al.* 1898), which must therefore have belonged to a larger Flavian fort. Thus, the visible defences were Antonine; as they showed signs of having been reduced in size - leaving the Antonine I north rampart cut off by the latest Antonine ditch system - two Antonine periods were deduced. There were at least two phases of timber buildings inside the fort and a single stone building which, unlike the timber structures, did leave room for an *intervallum* between

itself and the Antonine rampart, and was therefore considered to be Antonine in date.

There are, however, difficulties with this interpretation. G Maxwell has recently argued that there is reason to believe that the 'detached' north rampart of the 'Antonine I' fort may actually be an annexe: this explains why the second and third ('Antonine I)' ditches on the east side of the fort do not continue around the detached portion, but appear to respect an entrance on its eastern side - an anomalous position for a fort gate (Maxwell 1989, 167-68). It may also explain the curious attachment to the west side of the detached portion. If this was the case, within the Antonine period we would merely be seeing the passing out of use of an annexe or outwork.

In the interior of the fort there was no clear evidence for two periods of Antonine structures. As stated above, the timber buildings were considered to be Flavian because of their relationship to the rampart. Maxwell (1989, 115-16) has in fact also argued that there is sufficient space for a narrower Flavian fort rampart to have been roughly co-extensive with the rampart of the visible fort.

If one looks at the buildings that were recorded by the excavators of the 1890s in an attempt to isolate Antonine structures, several points are striking. There is a single stone building; if there had been others, surely these would have been seen. Of the timber buildings, there are two types: post-hole and sleeper-beam construction. It is the post-hole period that runs right up to the (Antonine) rampart and must therefore pre-date it. The beam-trench period does not encroach upon the rampart in this manner. In the plan, the headquarters, commanding officer's house and possibly part of a granary are visible in beam-trench construction; the post-holes do not make coherent sense. All this would be explained if the beam-trench construction represents the Antonine period, with the Flavian post-hole period glimpsed obscurely below it. The

stone building could be an isolated rebuilding in stone, or building of special function, contemporary with the timber Antonine buildings. This hypothesis has the attraction of actually being able to see evidence for Antonine occupation within the fort. The weakness of the traditional exposition was always that although two periods of Flavian timber buildings were well preserved, apart from one stone building, all evidence for the Antonine occupation had apparently disappeared. Nor need it occasion surprise that the Antonine central range buildings were of timber; this would seem to be a peculiarity of outpost forts, for Strageath was almost entirely timber in each of its Antonine periods.

Until further excavation takes place at Ardoch, it is therefore impossible to be sure that the evidence has been interpreted correctly in ascribing two separate Antonine occupations to this fort. Although, on any reckoning, there would have to have been much alteration in the Antonine period, there is nothing in the evidence at present available which necessitates a break in the Antonine occupation of the site.

****Strageath***

If the evidence for Antonine I and II at Ardoch can be seen as less than unequivocal, the excavations which have recently (1973-86) taken place at Strageath demonstrate that the fort was wholly replanned within the Antonine period (Frere and Wilkes 1989). The number of buildings interpreted as barracks was increased from eight to twelve. It was also observed that the rampart had been considerably enlarged. On the evidence available it was not possible to date the rebuilding of the fort closely within the Antonine period.

5.5.2 The Antonine occupation of Scotland reconsidered (Fig 22)

It will be apparent from the above, that the statement that the majority of excavated forts in Scotland show two distinct periods of Antonine occupation is false. Until the 1960s, Macdonald's view that three distinct periods were clearly visible on Antonine Wall sites prevailed. Steer (1964) showed that there was little real evidence for the third period; this ought to have raised suspicions about the generality of Antonine I and II, which was often based on very similar evidence to that for 'Period III'. Nor has the belief in two clear Antonine periods been much shaken by the exploration, in more recent years, of Antonine sites in Scotland, such as Bearsden and Barburgh Mill, which turned out to be single period.

Of the 36 Antonine sites in Scotland which have been excavated sufficiently to shed light upon the nature of their Antonine history, only five have produced unequivocal evidence for a complete rebuild of the fort or two separate occupations within the Antonine period. These have an interesting distribution (Fig 22). Three, Birrens, Cappuck and Newstead, were replanned as a prelude to their role as outpost forts of Hadrian's Wall after the abandonment of Antonine Scotland. Conventional wisdom would associate the building of Antonine II Birrens with a reoccupation of the Antonine Wall in *c*158; however, no-one will deny that Antonine II Birrens went on to have a much longer history than the Antonine Wall. If we momentarily put aside these three sites as having a history not necessarily identical to that of Antonine sites further north and west, and turn in that direction, we are left with two sites with unequivocal evidence of two periods. These are Strageath, and the fortlet at Outerwards. To these must be added a series of sites on the Antonine Wall which have epigraphic evidence for two garrisons: Mumrills, Castlecary and Bar Hill, or structural evidence of rebuilding in the principal buildings: Mumrills and

Old Kilpatrick. Finally, there is the fort at Whitemoss, where much Antonine alteration is reported, but no details published.

Even if it is considered that the two-period evidence from some sites considered above has been unfairly dismissed, and sites such as Ardoch, Cramond and Crawford are included, it does little to change the overall numerical picture.

Both on the Antonine Wall and elsewhere north and west of Newstead, expectation of two (formerly, on the Wall itself, three) Antonine periods has strongly influenced interpretation of excavated remains. In many forts resurfacing of streets, often the *intervallum* street, has been taken to indicate a re-occupation (eg Bothwellhaugh, Carzield, Castledykes, Glenlochar, Rough Castle, Croy Hill, Balmuildy and Old Kilpatrick). However, experience of the excavation of any Roman fort occupied for more than a very brief period shows that resurfacing of streets and maintenance and replacement of their accompanying drainage systems was a constant activity, whose various phases are not found to occur in general synchronisation from one part of a fort to the other, let alone from site to site.

The same may be said of alterations and changes in plan within timber barracks, a phenomenon claimed to indicate the rebuilding of 'Antonine II' in a number of the Antonine Wall forts. Timber structures on any military site occupied for a considerable time are prone to repair and alteration, irrespective of their having been any break in occupation or change in garrison. For example, in the legionary fortress at Exeter, occupied for only about twenty years, timber barracks were rebuilt to the same plan on two separate occasions (Bidwell 1980, 35). At South Shields, the current excavations (conducted by the writer) in the barracks of the first period of the supply-base (used for a period of between 15 and 25 years) have shown that the timber portions of these buildings were completely rebuilt sometimes on three occasions, even

though there is no evidence for a break in occupation or change of function during this period. A further example would be the successive replacements of timber barracks in the mid-first century Valkenburg. It is in this light, then, that the recorded alterations to barracks at such sites as Old Kilpatrick, Duntocher, Cadder and Mumrills must be viewed. In no case, has evidence ever been put forward for a distinct change of plan, break of occupation, or any activity that need not be a product of routine maintenance. There are cases, as at Cadder and Old Kilpatrick, where some of the barracks seem to have passed out of use; this hardly constitutes renewed activity after an occupational break. On the contrary, at a number of sites on the Antonine Wall, even where two distinct Antonine periods have been claimed, it has had to be admitted that the same barracks may have continued in use in both periods (eg Bar Hill, Rough Castle, Cadder: Hanson and Maxwell 1983, 139).

Some of the recorded evidence for successive periods of occupation in Antonine Wall forts now seems the product of pre-conceived ideas or wishful thinking; for example, Macdonald's interpretation of a ditch at Mumrills (shown by Steer to have been filled in one operation) as displaying three 'occupation levels'. The attempt to associate minor alterations in the central range buildings of Balmuildy to the expected general Antonine periods is a notable example, as is the interpretation of the excavations at Croy Hill. Cadder is a striking and interesting example. Here is a fort which at the end of its life has had its barrack accommodation drastically reduced, and much of its area, including its headquarters, turned over to industrial use. The *praetorium* was demolished and replaced by two successive timber structures which may, as argued earlier, have been workshops. Here is a fort of no more than one general period, changing in function upon the departure of most of its garrison. There is no evidence of re-occupation or reconstruction in a second

Antonine period. Yet, to the excavator, this was all clear evidence of Antonine I, II and III.

Looking along the Antonine Wall, it is interesting to isolate the forts which, upon a more sober assessment, really have evidence - whether epigraphic or structural - for more than one Antonine period. As we have seen, these are Mumrills, Castlecary, Bar Hill and Old Kilpatrick. It seems, then, that the best evidence for two Antonine Wall periods comes from the series of 'primary' forts (taking Bar Hill to be primary). Even in the primary forts, however, the evidence suggests not so much a wholesale reconstruction, but rather a re-organisation involving the movement of a different unit into the existing fort.

It could be suggested that this re-organisation was associated with the 'secondary fort' decision: that certain units were originally allotted to the primary forts, but replaced by others, or detachments of others, upon the decision to add the smaller secondary forts to the Wall.

Thus the original garrison of Mumrills will have been *ala Tungrorum*, who must have been present long enough for the altar which records their presence to have been dedicated. The structural evidence also suggests that their stay will have been more than ephemeral, for it was presumably this unit which built the large *praetorium*, which itself succeeded a (temporary?) timber building. The rebuilding at a reduced size of the *principia* could then have been carried out on the arrival of *cohors I Thracum*.

As we shall see (5.5.6 below), Mumrills has produced possible evidence of a longer occupation than the rest of the Antonine Wall forts. Should further such evidence come to light, an alternative possibility will have to be considered: that the second unit (probably the Thracians) garrisoned the fort as an outpost after the abandonment of most of the Wall system. This

is not to revert to the idea of Antonine II for the whole of the Wall, but simply to accept the possibility of continued occupation at one or two sites.

At Castlecary the building inscription of *cohors I Tungrorum* presumably denotes the originally intended garrison, with the Vardulli moving in upon re-organisation; as a unit of similar status, there was no need for the Vardulli to change the plans of the interior buildings. Neither unit can have been at full *milliary* size to fit into this 1.55ha fort. Here also ceramic and epigraphic evidence has been taken to indicate a later occupation, perhaps running down to the late 170s, suggesting an alternative explanation for the duality of attested auxiliary units, as at Mumrills. However, if there was such an extended period of occupation of the fort-as-outpost, this would seem the most likely context for the garrisoning by legionary vexillations suggested above.

At first sight, the sequence of garrisons at Bar Hill argues against the notion of the 'first' primary fort garrisons being part of a short lived original arrangement. The Hamian archers are shown by their inscriptions - naming two prefects - probably to have been in garrison for more than a brief period. Yet it is *cohors I Baetasiorum* that is named on an altar and building inscription found in the filling of the *principia* well which marks the final destruction of that building and abandonment of the fort. However, it is conceivable that the inscriptions of the Baetasii belong to the original construction of the fort, and were survivals into the period when the Hamii were in garrison, as L Keppie has suggested (Robertson *et al*. 1975, 26-7). On their arrival the Hamii would neither automatically deface a building inscription which, while naming another unit, also carried the full titles of Antoninus Pius, nor remove the previous garrison's altar, which, probably being placed in the *aedes*, may have been closely associated the Imperial cult (the inscription itself carries no dedication, and, as Macdonald pointed out (1934,

424-5), must have made self evident reference to context in which it was set). Conversely, at the final demolition of the fort, the Hamians might be expected to dispose of the Baetasians' altar, while taking away with them for re-use their own dedications from the *aedes*.

At the primary fort of Balmuildy, nothing is known of the garrisons, or whether there was a similar re-organisation. At Old Kilpatrick, a similar sequence to that at Mumrills may be glimpsed; reconstruction in the *principia*, and the presence of a unit smaller than that for which the fort should originally have been built: in this case most probably *cohors I Baetasiorum*. It is tempting to see the arrival of this detachment at Old Kilpatrick as following the postulated departure of the Baetasians from Bar Hill.

It is significant that it is the *principia* at both Mumrills and Old Kilpatrick which shows the clearest evidence of structural alteration. Although it is suggested here that at Mumrills this is most likely to be a result of a unit of different size replacing the unit which built the headquarters, at Old Kilpatrick the overall size of the building was not changed in the alterations. Here the situation might be explained if building had only got so far when the unit re-organisation took place, producing a dislocation in the building programme which resulted in the laying of two sets of foundations in a rather mixed up fashion. A good parallel for this can be found in the aborted set of foundations for a stone *aedes* and flanking rooms which underlie the first mid-Antonine stone headquarters at South Shields (Daniels 1989, 85). It is notable that no such dislocation is visible at Balmuildy or Castlecary, which, as stone forts, may have been started earlier in the building programme than Old Kilpatrick, allowing their principal buildings to be completed while the 'first' garrisons were still present. At the turf fort of Bar Hill, however, the *principia* was certainly completed while the Baetasians were still in garrison.

Naturally this is only one of many possible ways of interpreting the evidence, and it must remain a possibility that these primary forts entered some kind of 'Antonine II' period. However, the recognition that evidence for two periods of occupation on the Antonine Wall is confined to the primary forts begs the question of whether there is any remaining evidence compelling us to continue believing in two distinct Antonine periods, with the Romans abandoning - or largely evacuating - Scotland, and just as quickly re-occupying it. If the evidence for two units at three primary forts is interpreted in the light of re-organisation caused by the secondary fort-decision, then there is in fact no reason why the Antonine Wall should not simply have been occupied for the duration of a single period; that is, built, occupied for a time, abandoned and never re-occupied. There is no structural evidence from the Wall itself that can be brought against this suggestion.

It remains to relate the evidence from Antonine sites away from the Wall to this conclusion. As we have seen, there is no evidence from the great majority of these sites to support the idea of two occupations. Of those where the structural evidence is compelling in speaking of two periods of building or occupation, it is interesting to see whether their evidence necessarily contradicts the model outlined above, ie a single occupation of the Antonine Wall. As suggested above, the second periods at Birrens, Cappuck and Newstead could easily relate to the holding of the remaining area north of Hadrian's Wall after the abandonment of the Scottish Wall.

This leaves the sites of Whitemoss, Crawford and Strageath. Whitemoss and Strageath are intimately linked with the Antonine Wall system, and were no doubt occupied from its beginnings. It is possible that the re-organisation that affected the Wall at an early stage in its construction also left its mark at these sites; the enlargement of the garrison at Strageath could be a counterpoint to the reduction in garrison sizes in the

primary Wall forts. There are no published details of the alterations at Whitemoss, but, as at Strageath, there is nothing to show that alterations to the fort could not have taken place very early in the Antonine period.

One suggestion has already been advanced to explain the structural enlargement of the fort at Crawford and its barracks within the Antonine period - namely that this could well have represented a change of plan during the initial construction. Even if this suggestion is mistaken, and the fort was actually enlarged a considerable time after its original Antonine building, the point remains that the principal buildings within the fort were unequivocally of a single period, and never rebuilt, and that there was no evidence that there had ever been a break in the Antonine occupation of the site.

The only remaining apparently two-period Antonine sites to be considered are fortlets forming part of the Antonine Wall system. There is evidence that the interior of Wilderness Plantation milefortlet was cobbled over. If this and other milefortlets went out of use, this, like a change of garrisons in the primary forts, could be part of the reappraisal which brought the secondary forts onto the line of the Wall. Their arrival may have meant that occupation of all of the milefortlets was no longer considered necessary. If Outerwards, on the west coastal flank, was evacuated as part of this re-organisation, but after some years found, because of its coastal position, to be an installation worthy of a garrison after all, the evidence for its abandonment and later re-occupation within the Antonine period would be explained.

The conclusion is, therefore, that re-organisation, complex changes, routine maintenance and building within the Antonine period, taking different forms, at different times, have tended to be forced into the mould of Antonine I and II at whatever site they have occurred. There is no way of showing that any

of these phenomena occurred at the same time, or that they have any general significance.

There is nothing in the recorded changes of garrison, and rebuildings (confined to the primary forts) in forts on the Antonine Wall that cannot be explained by the dislocation and re-organisation caused by the decision to increase the number of forts along the Wall line. Such early Antonine re-organisation may have extended to sites, such as Strageath, away from the Wall itself. However, the majority of Antonine sites in Scotland do not show more than one period of occupation. There is no evidence for a general abandonment and re-occupation of forts in Scotland or on the Antonine Wall in the Antonine period. Newstead and its associated forts form the only exceptions. The 'Antonine II' of Newstead and other outposts in Lowland Scotland long outlasted the reign of Pius and the tenure of the Antonine Wall. The Antonine occupation of Scotland had been a single episode.

5.5.3 The ancestry of Antonine I and Antonine II

If the actual structural evidence speaks so negatively about the supposed two Antonine occupations of Scotland, it will be of great interest to search for the origins of an idea which has become so deeply entrenched in all thought on the subject.

The belief in a general Antonine I and II is intimately associated with the 'Brigantian revolt' of the 150s - an event more or less established in the modern literature (Frere 1987, 136-37; Hanson and Maxwell 1983, 146-47), but invented by Haverfield in 1903 as a means of interpreting some old and some newly discovered evidence for the mid-second century (Heslop and Haverfield 1904; Haverfield 1904).

An inscription (RIB 1322) had recently been dredged from the Tyne at Newcastle, which Haverfield read as recording the

arrival from Germany of reinforcements for the three British legions during the governorship of Julius Verus. This Verus was immediately identified with the governor recorded at Birrens in 158, when the fort there was rebuilt (RIB 2110) after having been fired. At Netherby, too, rebuilding under Verus was thought to be attested (RIB 977), while Brough on Noe was rebuilt under the same governor (RIB 283). Meanwhile, rebuilding had taken place on Hadrian's Wall, perhaps near Heddon, in 158 (RIB 1389). To Haverfield, and the generation of scholars that followed him, all this amounted to a Roman response to some momentous occurrence: a revolt in Brigantia. This would explain a need to move back from the Antonine Wall, re-commission Hadrian's Wall, and re-occupy and rebuild abandoned or destroyed forts in the Brigantian homeland. RIB 1322, in this view, represented the meeting of Roman needs, or losses sustained while crushing the revolt, with extra troops from Germany; and the vision was born of rebellion and destruction from Birrens to Brough on Noe. For Haverfield, the evidence of Pausanias (*Descr. Greece* 8.43), regarding Pius' seizure of Brigantian territory in Britain (formerly an enigma: how could Lollius Urbicus' war in the north have deprived the Brigantes of land?) clinched the event.

From an early date, the postulated 'Brigantian revolt' was closely tied to the hunt for two periods in Scottish Antonine sites; it was standard to cite 'the revolt of about 155' in the Antonine Wall fort excavation reports of the 1920s as the explanation for the first of the observed 'destructions' or 'disasters'. As we have seen, these observations were usually delusory; but the expectation was there. It can, in fact, be traced back to Birrens, whose excavation stands at the head of the list of the influential turn of the century Scottish fort excavations, some of which did happen to produce two Antonine periods. This can be seen from the following table, which shows the dates of excavations of sites (**) showing two Antonine structural periods, and of sites (*) which at the time

were interpreted as providing strong evidence for two such periods:

Birrens	1895	**
Cappuck	1886, 1911	**
Newstead	1905-10	**
Old Kilpatrick	1923-24	*
Mumrills	1923-28, 1958-60	*
Cadder	1929-31	*
Durisdeer	1938	*
Duntocher	1947-51	*
Whitemoss	1949-54	*
Crawford	1961-66	*
Wilderness Plantation	1965-66	*
Outerwards	1970	**
Strageath	1973-86	**

It is notable that with the exception of two examples too recent to have influenced the ideas of the early excavators who saw everywhere evidence for Antonine I and II, the sites which did produce the requisite structural evidence occur in a row at the beginning of the list.

Birrens, with its rebuilding after violent destruction, was central to Haverfield's invention of 'the Brigantian Revolt'. Then Macdonald, in his *Roman Wall in Scotland* (1911) incorporated into Antonine Wall Studies the expectation of two periods separated by the Brigantian revolt of c155; paradoxically Macdonald used the evidence of excavations at Rough Castle (1902-3), Castlecary (1902) and Bar Hill (1902-5) in support of this conclusion, although these sites are amongst those with the weakest structural evidence for two periods. The epigraphic evidence for two units at Castlecary and Bar

Hill, reminiscent of that of two units at Birrens, must have tipped the scale.

Thus it was that the spate of investigations of Antonine Wall forts and other military sites in Scotland occurred in the wake of the excavation of a few key sites which showed two Antonine periods, and immediately followed the invention of an explanatory model which was at once convincing and attractive and which suggested that a break in Antonine occupation might be found on other northern sites. In the urbane and assured prose of Macdonald, the signs of Haverfield's revolt came to be seen in every fort on the Antonine Wall.

The recent changes in thought based on pottery studies have led to the continued respectability of Haverfield's revolt. Now that it is widely agreed that the Antonine Wall was abandoned by the 160s (Hartley 1972), the casting around for a context for the break between the two Antonine Wall periods has again lighted on the 'Brigantian revolt'. Hanson and Maxwell, for example (1983, 146-47), cautiously accept the idea. The process has become circular: it is thought likely that there was a Brigantian revolt because of a break in the occupation of the Antonine Wall; the evidence for that break (if it exists at all), was gathered as a result of expectations raised by the theory of a Brigantian revolt. In truth, of course, there is no direct evidence whatsoever that such a rebellion occurred in Brigantia during the 150s. This has repeatedly been pointed out (Gillam and Mann 1970, Dobson 1972; Gillam 1974). It is not necessary here to rehearse the point that the evidence thought to indicate such a revolt, whether gathered in Haverfield's time or since, may be read in more than one way. It will suffice to say that the above survey has made it clear that there is little basis for one of the strongest circumstantial supporting arguments for there having been a Brigantian revolt: namely that the Romans briefly abandoned the Antonine Wall, re-occupied the Pennines, and then moved north to re-occupy the Scottish Wall. In fact, both the Brigantian

revolt and Antonine I and II are modern ideas, and their roots are closely intertwined.

5.5.4 The abandonment of Antonine Scotland

Having argued that the Antonine Wall was held for a single period only, it is necessary to discuss the possible dates at which the abandonment of the Wall might have taken place. It is not pretended here that one of the candidate dates can be selected, argued for and proved; the available evidence is still too fragmentary and apparently contradictory for such a neat solution; however, the various possibilities may be surveyed.

The basic datum is provided by Hartley's (1972) analysis of the samian, which indicates that there should have been no widespread occupation on sites north of Newstead after the mid-Antonine period. Although his samian could never allow such exactitude, Hartley settled on the date *c*163 for the final abandonment of the Antonine Wall and re-commissioning of Hadrian's Wall: this date was derived from a building inscription of Calpurnius Agricola at Corbridge. The association of Calpurnius Agricola with the re-occupation of Hadrian's Wall was first made by John Gillam 19 years earlier; the difference was that Gillam (1953) still envisaged a later re-occupation of the Antonine Wall.

The year 163 has accordingly passed into a number of text-books. Only recently has a later date for a mid-Antonine abandonment of Scotland been strongly argued for: C Daniels (1991) has shown that it is just as reasonable to argue that the withdrawal may have occurred as late as 168/9. Meanwhile there are others who persist (eg Mann 1988) in arguing for a late second-century re-occupation of the Antonine Wall after a temporary return to Hadrian's Wall in the mid-Antonine period.

Every one of these models proceeds with the assumption, implicit or explicit, that there are two distinct periods of occupation on the Antonine Wall. The assumption is central to the latter, split-chronology model. It is suggested here that the conclusion from the analysis above, that there is no evidence for more than one general Antonine Wall period, or for any interval between occupations, is fatal to the thesis that after a break of about twenty years the Romans returned to re-occupy the Antonine Wall. J C Mann's recent restatement of the argument for a split chronology (Mann 1988) is essentially based upon a dismissal of the value of ceramic dating evidence and an acceptance of two 'facts': first, that there is evidence that Hadrian's Wall was being re-commissioned in c158; second, that there is evidence for the occupation of the Antonine Wall after 158 (Mann 1988, 132). Mann goes on to argue, from literary and other circumstantial evidence, that a re-occupation of the Antonine Wall took place c184-c195. Structural evidence for two Antonine Wall periods, which should be the key to such an argument, is in fact not addressed, presumably because the frequently repeated assertion of the general structural existence of two Antonine periods is thought to be well-established and beyond question. That the acceptance of the existence of 'Antonine I' and 'Antonine II' may now be questioned, allows a different light to be shed upon the split chronology solution; in particular it shifts the whole weight of the argument onto the supposed evidence for occupation on the Antonine Wall after 158.

The Hartley and Daniels, and all other modern suggestions have all, in contrast, taken on board the idea that any break between Antonine I and II must have been very brief: this is not really based on a scrutiny of the structural evidence (which apart from the later Hadrian's Wall outposts provided no evidence any way for any sort of break), but rather on an acceptance, forced by the pottery dating, that both Antonine periods must be confined to the reign of Pius or first few years of Marcus' reign. The increasing tendency to see the

break between Antonine I and II as a brief one is viewed here as the beginning of a suspicion, fully borne out by the structural evidence, that at most Antonine sites there was no break in occupation at all.

When was Antonine Scotland finally abandoned? The range of possibilities which fall in the Period *c*158-*c*169 will be considered one by one.

1. *c*158

One problem which the view of Antonine Scotland as a single period causes for the generally advanced abandonment dates, is that it allows an earlier date, about 158, to be introduced as a possibility for the final abandonment of Scotland. Of course this is the date when everyone accepts that the Antonine Wall had been abandoned *for the first time*; could this in fact be the date of the final withdrawal?

This model has the virtue of taking the epigraphic evidence at face value. RIB 1389, dated to exactly 158, appears to record rebuilding on Hadrian's Wall. It is usually taken as coming from the curtain itself. There are problems with this; the exact provenance is unknown and the stone does not resemble other inscribed building stones from the curtain. At the very least, however, it should indicate rebuilding at a fort or milecastle. This stone ties in attractively with several other inscriptions; Birrens was rebuilt in the form that it would take down to the late-second century in 158 (RIB 2110). It is more difficult to associate other stones with events on the northern frontier. Brough on Noe was rebuilt and re-occupied in 158 on the basis of RIB 283. The discovery of the famous RIB 1322 in the Tyne in 1903, supposed to record the arrival of reinforcements for the British legions from the two Germanies, and dated to this period by the name of Julius Verus, known from the Birrens inscription to have been governor in 158, led

Haverfield to combine these pieces of evidence to suggest the 'Brigantian revolt' in the 150s, leading to a re-occupation of the Pennines. Now that it is clear that there is no evidence for a re-occupation of the Antonine Wall, it is tempting to wonder whether the re-organisation implied by these inscriptions in fact represents the *beginning* of the permanent re-commissioning of Hadrian's Wall and its outposts and hinterland. In support of this early date, we might list two building inscriptions (RIB 1460; 1461) from Chesters, on Hadrian's Wall, undated (contra RIB; see Mann 1988, 132 and n.2) within the reign of Antoninus Pius. These could have been set up between 158 and 161 as part of the rebuilding of Hadrian's Wall.

The only way to disprove such an early date for the permanent re-occupation of Hadrian's Wall would, as Mann points out, be to find evidence for occupation of the Antonine Wall after 158. Although there are a number of coins later than this date from the Antonine Wall, none is from a recorded archaeological context (except perhaps the coin of Lucilla, no earlier than 164, 'found in granary' (Miller 1928, 34) at Old Kilpatrick). It is difficult to assess the significance of the scattering of coins of Marcus and Commodus from the Antonine Wall. Stray coins of the fourth century are well-known in Scotland; but in this period coinage was more abundant than in the later-second century. If the post-158 (or, for that matter, post-160s) coins are to be dismissed, it may perhaps be asked why these rare coins do not occur alongside strays of a later date. On the other hand, if this coin evidence was taken at face value, given the single period occupation of Antonine Scotland which we have established, a continuous occupation of the Antonine Wall down to 176 (the earliest date of the latest coins: Mann 1988, 132) would be necessitated.

It is possible that these coins indicate that the Wall, or simply selected sites on the Wall, continued in occupation into the 160s. This does not necessarily invalidate the theory that

the permanent return to Hadrian's Wall began in *c*158; it is possible to envisage a complex process of transfer from one frontier to another, in which some sites continued to be occupied on the old line while the new one was completed. There are hints of something similar happening when the Upper German frontier was moved beyond the Neckar. This might be the explanation of coins of 164-183 at Old Kilpatrick and 160 at Cadder. Later coins of the 170s from Mumrills, and doubtfully, Bar Hill and Kirkintilloch, could have arrived at the sites during the long period of persistent Roman military and diplomatic interest in this part of Scotland which followed the end of the Antonine occupation. They may also be associated with the possibility of outposts being held in the 170s at Castlecary and Mumrills (see 5.5.6 below).

2. *c*163

The possible significance of the Calpurnius Agricola inscriptions (of which RIB 1149 is restored as dating to 163) as referring to a restoration of Hadrian's Wall was first seized upon by J P Gillam in 1953, although of course it was still believed that the Antonine Wall was later re-occupied. Hartley took up the *c*163 date, seeing it as the time of the final withdrawal from Scotland north of Newstead. The 163 date allowed just enough time for a brief re-occupation of the Antonine Wall after the supposed break, and momentary return to Hadrian's Wall, of *c*155-58. Now that we have seen that for the bulk of Antonine Wall sites the evidence for occupational break was illusory, the case for 163 is rather weakened. A general mid-Antonine conclusion to the Antonine Wall system may as well coincide with the hint of rebuilding work beginning on Hadrian's Wall in 158.

In favour of the 163 date, however, it might be argued that an abandonment of the Antonine Wall during the reign of Pius is inherently unlikely, while such a policy review may more

probably have been undertaken after the new emperor's accession. This is a line of argument however, that takes much for granted, above all the centrality and importance of the details of a remote frontier to the Imperial court and the Roman public; to argue that the Antonine Wall could not be abandoned before the death of Pius may be to exaggerate the importance which our present subject of study possessed for contemporaries outside the immediate region. It is also an argument which returns to the presupposition that the advance of the Antonine frontier in Scotland was primarily politically motivated, a notion challenged in Chapter 6.

Besides best-fitting the mid-Antonine date for the withdrawal implied by Hartley's study of the samian with the model of two Antonine occupations of Scotland, the 163 date was also based upon the literary evidence of the pressures mounting on the continental frontiers at the beginning of Marcus' reign. However, as C M Daniels has recently (1991) shown, these pressures did not perhaps become decisively acute until the late 160s; while there may have been serious unrest in Germany - and there almost certainly was re-organisation of the Upper German and Raetian frontier - before 158 (Speidel 1987, 236-37). It is well before 163 that we have our only direct evidence of troops travelling from Britain to the Germanies, or vice versa, under Julius Verus (RIB 1322). Thus the 163 date has no special claim as a time of military crisis on the continent, although as ever it is always possible that it forms the context for the withdrawal. For Britain, we learn from SHA that war was threatening early in Marcus' reign and that as a result Calpurnius Agricola was sent against the Britons. The source is silent on the subject of frontier building; it in no way states that Calpurnius abandoned one frontier or constructed another. If anything, the implication that a formidable general undertook effective measures might seem difficult to square with his abandoning Antonine Scotland upon arrival in the province. On the other hand, it is easy to envisage unrest on the frontier occurring in the aftermath of

the abandonment of the Antonine Wall, precipitating Calpurnius Agricola's dispatch to the Province.

Finally, it may be noted that the Calpurnius Agricola inscriptions have a remarkable distribution; five (RIB 1703; 1809; 1792; 1137; 1149) out of seven occur at sites on the Stanegate: Vindolanda, Carvoran and Corbridge; there is none from the forts on Hadrian's Wall. This, of course, is of ambiguous significance; it has been variously taken to mean the reconstitution of the Hadrianic frontier (Gillam 1953; Hartley 1972), or that a forward policy was still being pursued and Hadrian's Wall itself was unoccupied (Daniels 1991).

3. c168-9 or later

The weight of Daniels' recent (1991) argument for a later date for the abandonment rests primarily upon the circumstantial point that the military crisis assailing the continental frontiers did not become sufficiently acute to necessitate draining Britain of troops until after c166. The argument for a date later than c163 is an attractive one, if the withdrawal must lie within the reign of Marcus; however, it takes little account of the possibility that the Antonine Wall as a formal linear frontier had been abandoned as early as c158. Daniels cites the numismatic evidence for occupation after 163, but as argued above, coins of the 160s at two sites could have resulted from the retention of some forts in the north while the new frontier was being completed.

Otherwise much weight is placed upon the inscriptions of Calpurnius Agricola from Corbridge: 'Building activity at Corbridge during the second century and opening decade of the third seems to have gone hand in hand with a forward policy in Scotland rather than retrenchment on Hadrian's Wall' (Daniels 1991, 49). Furthermore the Mithraic dedication of one of these inscriptions is used (1991, 50) to suggest that it was not cut

before 166, the worship of Mithras having been acquired by a vexillation returned from Lucius Verus' Parthian War which ended in that year. The problem with this argument is that it is known that a kind of forward policy was continued north of Hadrian's Wall after the abandonment of the Antonine Wall; the forward policy in Scotland, running on well after *c*163, to which these inscriptions may well refer, could simply be that connected with the holding of forts all the way up to Newstead or beyond; as the Severan activity at Corbridge shows, building work at this site need not necessarily be linked with permanent occupation in central Scotland on the scale of the early Antonine period, or be incompatible with activity on Hadrian's Wall.

5.5.5 An earlier date for the abandonment of the Antonine Wall?

The Antonine Wall could have been abandoned at any of the dates suggested above; there is insufficient evidence to prove or disprove any of these suggestions. However, each of the later possibilities has the difficulty that it fails to explain fully and convincingly the suggestion of reconstruction on Hadrian's Wall in *c*158; or rather these suggestions, like the split chronology solution, tacitly explain the 158 evidence by assuming two structural periods of activity on the Antonine Wall. We have seen that the evidence for this long-held assumption is unsatisfactory.

In the light of the above scrutiny of the structural evidence from Antonine Scotland, an alternative hypothesis is offered here. It can no more be proved than any of the others, but it may be felt that it at least takes account of the various, apparently contradictory, pieces of archaeological evidence.

The brief and single period nature of several of the excavated Antonine sites in Scotland, including many on the Antonine

Wall, suggests the possibility that they were given up after a brief holding, perhaps as early as c158. About this time, restoration of the Hadrian's Wall system began, explaining RIB 1389 and the building inscriptions of Pius from Chesters. Birrens was thus rebuilt for a new garrison in 158 as an outpost fort of Hadrian's Wall; the same would explain the rebuilding of Newstead.

Although it is often - and probably sensibly - held that the two Walls would not have been held simultaneously, it is quite possible to think of a number of the Antonine Wall forts being held for a further six or seven years while building work on Hadrian's Wall was being undertaken; it is perhaps implausible that all troops would be withdrawn from the Antonine Wall in an instant once the decision had been made to re-commission the southern Wall. This would explain the coin of 160 reported from Cadder (Clarke 1933, 82) and perhaps the coin of 164 or later from Old Kilpatrick. But the basic proposition is that the two periods of Antonine Scotland, where they exist, represent a withdrawal to the Tyne-Solway line that began in c158 and which was never reversed.

This line of argument has been anticipated:

'It might be argued that the reoccupation of the [Hadrian's] Wall was begun in 158 and continued as a gradual process. This... represents a return to the doctrine of simultaneous occupation of the two Walls which is both a priori unlikely and totally at variance with the analysis of the samian ware' (Hanson and Maxwell 1983, 148).

While accepting that the samian analysis precludes any prolonged or intensive occupation of Antonine Scotland after the return to Hadrian's Wall (as suggested in Frere 1967) it ought to be obvious that if the samian can accommodate the idea of a full return to Scotland in the years 158-163, then it can also accommodate some residual occupation of the Antonine Wall

during a handover period in the years *c*158-165. Indeed, as Hanson and Maxwell earlier state:

'A comparison of the samian pottery from the two Walls shows only a 5 per cent overlap in the distribution of potters' die-stamps...In other words, the occupation of the two Walls overlapped sufficiently for the repair of one prior to the occupation of the other, but no longer' (1983, 140).

5.5.6 Outposts north of Newstead after the abandonment of the Antonine Wall?

Apart from the coins already discussed, two further pieces of evidence may be taken to indicate late activity on the Antonine Wall. The first is the occurrence of round rimmed BB2 bowls at Mumrills (Macdonald and Curle 1929, 536-9). These are typologically later than the triangular rimmed BB2 bowls ubiquitous on the Antonine Wall. But the round rimmed bowls have been recorded at no other site on the Wall.

The second is the altar from Castlecary (RIB 2148) suggested by Mann (1963) to date to the period 175-90; further epigraphic evidence has been used, less convincingly, to the same effect (Frere 1987, 152-53, n.34, Mann 1988, 134-35). This raises the possibility that Castlecary continued in use during the 160s and 170s as an outpost: this may have been a repeat of the role the fort may have served as part of the Flavian disposition of forts surrounding and looking into Lowland Scotland.

The survival of Castlecary into the 170s seems compatible with the ceramic evidence as analysed by Hartley. Hartley stressed the very low incidence of stamps in Scotland in common with the Wroxeter Gutter deposit (dated by him to 160-200, and probably 165-75) and the absence of stamps in common with the Pudding Pan Rock wreck (dated by him to 160-200 and probably 175-95). Needless to say, these events in southern Britain could have

occurred later in their possible date ranges than earlier; and even on the dates that Hartley suggests, a continuing activity on certain sites into the 170s would be permitted. One of his Wroxter Gutter stamps is marked (1972, 28) as appearing at Castlecary; Hartley also notes that Castlecary produces the only example of late-Antonine 79/80 in Scotland outside Newstead.

Thus it appears that Hartley's observations are compatible with the suggestion that after a final abandonment of the Antonine Wall as a linear system starting about 158, an outpost fort or forts north of Newstead continued to be held during the 160s and beyond. The evidence from Castlecary and Mumrills may mean no more than this and does not necessarily indicate that the whole Antonine Wall system was still in use in the 170s.

There are other possibilities for outposts north of Newstead at this time; it was noted above that the structural evidence from Cramond does not clearly demonstrate an interval between Antonine and Severan occupations.

5.5.7 The return to Hadrian's Wall and its aftermath (Fig 21)

Since Hartley wrote, a deal of archaeological evidence of a mid-Antonine reconstruction and overhaul on Hadrian's Wall and its associated road systems has accumulated. Excavation in 1991 (pers. comm. P. Bidwell) on the second stone road bridge where Hadrian's Wall crosses the North Tyne at Chesters has produced coarse pottery in a construction level which shows that this bridge, and therefore the accompanying road system, probably dates to the mid-Antonine period (correcting the Severan date proposed in Bidwell and Holbrook 1989). At another bridge site on the Wall, Newcastle, the coarse pottery shows that the fort was established in the mid-Antonine period (report by Tyne and Wear Museums in progress).
Chester-le-Street, on the road that runs up from the south to

connect with Newcastle, seems to have not been built before the Antonine period, as BB2 in the rampart of the first timber phase shows (Frere 1991, 238). At South Shields and Ebchester, rebuilding in stone took place in the mid-Antonine period (Maxfield and Reed 1975; Daniels 1989, 83). By the nature of the archaeological evidence, this activity on Hadrian's Wall and its hinterland cannot be very closely dated, but it should combine with the evidence of the samian and the structural evidence from the Antonine Wall to indicate that after the mid-Antonine period there was not a further abandonment of the southern wall and second re-occupation of Scotland. Once commenced, probably *c*158, the process of reconstruction on the southern Wall and its hinterland was never reversed.

There is more evidence to suggest that the mid-Antonine re-occupation of Hadrian's Wall was connected with a continuing interest in Scotland, although the Antonine Wall was no longer held. The architectural techniques employed in Bridge 2 at Chesters have been observed to be closely similar to those used in the bridge at Corbridge, leading to the suggestion that the same architect may have been responsible (Bidwell and Holbrook 1989, 105). A further stone bridge, which while not employing identical architectural techniques, does resemble bridge 2 at Chesters in its possession of decorative columns, carried Dere Street across the Rede at Risingham. There is no way of proving at present that this bridge was part of the same building programme, but the possibility is there; a possible context for the work on these stone road bridges would be the governorship of Calpurnius Agricola, whose inscriptions, it will be recalled, concentrate upon Stanegate sites, including Corbridge. Intriguingly there is a building inscription from Risingham (RIB 1227) almost certainly dated to 161-9. Bidwell and Holbrook made the suggestion that the building of Bridge 2 at Chesters was associated with a transfer of the line of the Stanegate road so that it crossed the river by this fort rather than at an unguarded crossing further to the south (1989, 137-38); it is possible that the provision of the Military Way

on Hadrian's Wall, and associated alterations and repairs on the Stanegate went hand in hand with bridge building and maintenance on the road north into Scotland. This was not because Scotland was being re-occupied, but because communications with the remaining and increasingly isolated outposts there would require strengthening.

Thus one solution which takes fair account of the evidence sees the reoccupation of Hadrian's Wall beginning in c158, under Julius Verus. This will have marked the end of the Antonine Wall as a formally operating linear system. The process of transferring garrisons south from the Antonine Wall may have continued into the term of Calpurnius Agricola, who was also responsible for continued building work on the new frontier, notably on the road system; communications with Scotland remained important. Here, Birrens, Newstead, Cappuck and perhaps Castlecary and Mumrills continued to be garrisoned; the latter outflung sites were perhaps the subject of some agreement with local peoples. This drastically reduced hold on Scotland is the only meaning which the term 'Antonine II' can have. Even Mumrills and Castlecary, if they survived at all, may have been given up by the 170s (Mann gives 175 as the earliest date for RIB 2148).

For all this it is possible that evidence will one day accrue to point to the generality of sites in central Scotland being held into the 160s, perhaps down to the 168-9 date suggested by Daniels, with Castlecary and Mumrills held after that. Should this be the case, there will be no alternative but to accept that there was some building activity somewhere on Hadrian's Wall, as well a rebuilding of Birrens, while the Antonine Wall was still generally held. However, this would not invalidate the point established here: that, at whatever date between 158 and 169 Antonine Scotland was abandoned, its occupation had been a single episode. There is no good evidence for a return to Hadrian's Wall followed by a re-occupation of the Antonine Wall.

5.6 The Frontier after the abandonment of Scotland

Inevitably one is tempted to ask whether the abandonment of Castlecary (if we are right in thinking that it outlived the other northern sites) was associated with the turbulent events of the early 180s, when we hear from Cassius Dio that the wall which separated the barbarians from the Roman forts was crossed, and a Roman general killed with his army. There is no good reason, despite many protestations to the contrary, why this passage should not refer to the Antonine Wall, which, although no longer functioning, would have been a formidable physical landmark and barrier. At this time, it would certainly have formed a cordon beyond which there were no Roman garrisons, exactly the description given in the source.

Although Ulpius Marcellus is said to have inflicted terrible punishment on the invaders, the evidence considered above does not support the notion that Scotland was re-occupied in force at this time. Indeed, the Romans may have resorted to buying peace, a policy that was apparently still in place a decade and a half later when Virius Lupus, Severus' first governor, arrived in Britain. How long, if at all, after the events of the 180s Birrens and Newstead continued to be held cannot be ascertained from the evidence available.

By the early third century, of course, the famous series of auxiliary regiments that were to man the Hadrian's Wall forts throughout the closing two centuries of Roman Britain were in place. As Horsley first perceived, these units are in almost every case tied to their individual Wall forts by both third century epigraphic evidence and the testimony of the late-fourth century *Notitia Dignitatum*. Along with the epigraphically attested *cohortes milliariae equitatae* of the outpost forts, these units formed the permanent garrison of the outward looking third century frontier. Although in the past the reform that brought this system about has often been dated to the aftermath of the Severan war in Scotland (Steer 1958),

others (Breeze and Dobson 1987, 143-44) have pointed out that there is evidence for a number of the third century garrisons (at Benwell, Chesters, Birdoswald and Risingham) being in place by 205-7, before the Severan campaigns, and raised the possibility that much of the third century arrangement of Hadrian's Wall (including the permanent garrisons of Wall and outposts) originated as early as the 180s. At Old Carlisle (RIB 893) this was certainly, and at Chesters (RIB 1463-4) almost certainly, the case. Breeze and Dobson also suggest that many of the changes that had taken place by the third century in the smaller installations of Hadrian's Wall (discussed below) may date from this time. An argument is also made for the existence of *exploratores* (such irregular units being well attested in the outpost forts of the third century) in an outpost fort - Netherby - as early as the mid-Antonine period (Breeze and Dobson 1987, 144). This is because Birrens, which appears in the same Iter of the Antonine Itinerary as *Castra exploratum* (Netherby), 'was apparently abandoned by about 184'. The last argument is problematic, because on the available evidence Birrens could have been held later than c184; the general point, however, that much of the third century character of Hadrian's Wall and its outpost system predated the Severan campaigns, remains forceful and convincing. Nor should this be surprising, given the military and diplomatic interest running north of Hadrian's Wall which we have argued to be characteristic of the Wall's mid-Antonine restoration. Breeze and Dobson are therefore right to remark (1987, 144) that: '...the campaigns of Severus mark a complete break with his governors' policy of overhauling the system based on Hadrian's Wall...After the campaigns of Severus Caracalla simply reverted to this system'.

Into this picture of continuous development interrupted by the Severan campaigns, we have to fit the abandonment of inland outposts such as Birrens and Newstead, and the establishment of a new class of outpost fort. Although it is generally supposed (Robertson 1975, 284-6; Bruce 1978, 319) on the evidence of

samian pottery and an absence of Severan coinage, that Birrens and Newstead were given up some time in the 180s, there is nothing to show that they were not held until the end of the second century, or even slightly beyond. If Castlecary really was lost in the breach of a Wall in the 180s, it is tempting to wonder whether a deteriorating military situation led to the abandonment of Newstead and other outflung sites at some date in the 190s. This would provide the context in which the hapless Virius Lupus, arriving in Britain in 197, had to buy off the Maeatae.

Virius Lupus and a succeeding governor, Alfenus Senecio, as the epigraphic evidence shows, concentrated on overhauling the forts on Hadrian's Wall and at least some of its outpost system; this was all they could do in the absence of a major offensive against the northern tribes. That offensive did eventually come when the Imperial family itself found the opportunity to instigate a major campaign against the Maeatae and the Caledones, in 208-11. To the army on the ground, this may have come as a surprising about turn in policy, which would explain why apparently defensive consolidation of frontier sites was formed the prelude to an apparent war of conquest. In fact, the reality of the situation on the ground may, as much as the death of Severus at York, have decreed that the wars were followed, not by an occupation of vast new territories, but rather by a return to the policy of diplomatic and outpost control from Hadrian's Wall. In any case, the division of the province rapidly led to a downgrading of the frontier of Britannia Inferior. 'The reduction in number of legions and lowering in rank of the governor effectively closed the period of military activity by consular governors in the north. In six years at the most Caracalla turned the scene of an imperial campaign into a quiet backwater' (Dobson 1971, 13).

Forts such as Newstead, which would have been important elements in such a network of occupation, were not re-occupied after the Severan campaigns. Rather we see the emergence of a

new class of site. The legionary base at Carpow was probably built after the campaigns. The fort at Cramond, which, on the evidence presented above, may not actually have seen a long break, or any break, in occupation, since the Antonine period, seems to have been in occupation at this time. Inveresk was noted above as another possibility. These coastal sites may have formed part of a new system of remote observation and control of tracts of land in and around the Firth of Forth and the Fife peninsula. They may have served to protect friendly peoples inhabiting coastal plains in the area, and have operated as an economical system of military and diplomatic control in the same way as was suggested above (2.3 and 3.4.1) for Lowland Scotland in the late Flavian and early Trajanic period. The defeat of the Maeatae and Caledones would have paved the way for such a diplomatic relationship, where the Romans did not resort to wholesale occupation but merely maintained sites, supplied by sea, at key concentrations of allied population.

For a time, then, this 'coastal province' may have served as an annexe to the usually understood permanent network of third century military control known to extend from Hadrian's Wall as far north as High Rochester and any associated, undiscovered sites. It was a new conception, made possible by the weakening of the hostile confederation of northern tribes by the Severan campaigns. The payment of subsidy may also have played an important part in maintaining these arrangements, as it had done in central Scotland since the abandonment of the Antonine Wall (Todd 1985).

At present, there is insufficient evidence to say how long the arrangement (if it survived the Severan wars by long) may have lasted. As far as actual garrisons are concerned, there is no evidence of occupation at these sites going into the second half of the third century. The northern barbarians must have gradually regained strength (as campaigns at the end of the third century show), and by the second decade of the fourth

century even High Rochester and Bewcastle were abandoned (Casey and Savage 1980; Austen 1991). In the mid-third century, then, at about the same time as the Romans lost the frontier beyond Rhine and Danube, so the long and consistent attempt to exert control as far as the Highland line in Scotland was finally abandoned.

5.7 Hadrian's Wall in its restored state (Fig 21)

5.7.1 Fort garrisons and spacing

All of the Hadrianic forts on the Wall were apparently re-commissioned. The garrison of very few of the forts at this time can be established; inscriptions of *cohors II Nerviorum* at Wallsend (RIB 1303) and Vindolanda (1683) could belong to this time, or earlier, or later in the second century; at least part (a prefect rather than a tribune commands this milliary unit) of *cohors I Vangionum* would seem to have been the Marcan garrison of Benwell, perhaps with some legionary detachments, on the basis of RIB 1327 and 1328; but by 177-180 the unit may have been superseded by an *ala* (RIB 1329). At Chesters, *ala II Asturum* was in garrison by *c*180 (RIB 1463); *cohors I Delmatarum* (Wright 1957, 229) may have preceded them. At Greatchesters a *cohors...Raetorum* is attested in 166-69 (RIB 1737). At Carvoran, *cohors I Hamiorum* had certainly returned by the governorship of Calpurnius Agricola to regarrison the fort that they had built before the Antonine episode in Scotland (RIB 1792). At some time in the second century upon or after its departure from the Antonine Wall, *cohors I Baetasiorum* was transferred to Maryport.

At outposts of the southern wall, *cohors IV Gallorum* seems to have garrisoned Risingham under Marcus and Verus (RIB 1227), while *cohors II Tungrorum* had replaced *cohors I Nervana Germanorum* at Birrens in c158 (RIB 2110). There are hints in

all this that some of the complicated garrisoning of the Antonine Wall may have survived into the Marcan period on the more southerly frontier; the detachment of a milliary unit and legionaries at Benwell, and the brief tenures of some units in the Marcan period, are reminiscent of the arrangements on the northern Wall.

As noted above, Benwell, Chesters and Old Carlisle were already accommodating their permanent third century units by the 180s; the extent to which this was a general phenomenon of the 180s is uncertain. Nevertheless, the impression is gained that after the fluid arrangements of the reigns of Pius and Marcus, from the 180s the northern frontier was settling into the pattern of garrisoning that is epigraphically so clearly attested in the third century. The main differences in that pattern from what had gone before were: the addition of the known fort at Newcastle, probably from the 160s (the date of origin of a further small fort, Drumburgh, is uncertain); the supplementing of auxiliary units at some sites with irregulars, *numeri*, *exploratores* and the like; and the now formidable garrisons of the outpost system, predominantly *cohortes milliariae equitatae*, the largest and most versatile units of the Roman auxiliary army, usually supplemented by an irregular unit or units. The mid-Antonine restoration of the southern Wall also saw the foundation or rebuilding for new units of several hinterland sites (Chester-le-Street, South Shields); as much attention may have been paid to the support forts of the Wall, and their communication system, as to the far-reaching outposts.

An attempt to rationalise these developments might suggest the following:

1. The mid-Antonine restoration of Hadrian's Wall, c158-c180. Much work on the Wall, its hinterland, and communications system; some sites still held as far north as Antonine Wall, possibly in expectation of return to Scotland. This phase ends

with barbarian invasion and loss of any remaining Antonine Wall sites.

2. The Commodan settlement, c184-c205. Despite Ulpius Marcellus' campaign against the northern barbarians, Newstead now abandoned; the northern confederation held at bay with subsidies and diplomacy. Hadrian's Wall forts and outposts now rebuilt to take their permanent garrisons, therefore perhaps no longer expectation of return to Scotland. Military situation in north deteriorates.

3. The Severan phase, 211-c250?. Wars of 208-11 do not substantially alter pattern of 2. Their aftermath allows temporary diplomatic and coastal control of parts of Scotland beyond the outposts.

5.7.2 Minor installations and their spacing

The milecastles in general survived into the third century, though often with reduced gateways (Breeze and Dobson 1987, 132); several of the turrets did not (Allason-Jones 1988). However, at least some turrets were re-occupied in the mid-Antonine period, as their pottery and occasional physical links to the Military Way demonstrate (Bidwell and Holbrook 1989, 136). Their eventual disuse and walling up (perhaps so that a wall-walk could continue over their sites) may date from the 180s onwards. Reasons for this are discussed in the comparative section on watchtowers.

5.7.3 Building Materials

The return to the southern Wall presumably entailed much rebuilding on that frontier, all of it in stone. It is possible that at least some of the reconstruction associated in the past and more recently with the activities of Septimius

Severus in fact dates to the mid-Antonine re-occupation of the Wall: for example, Bridge 2 at Chesters. Nevertheless, as this structure obviously implies a grand architectural conception for the restored Wall and its associated works, we can expect such elaborate reconstruction work to have extended to the curtain itself and to other structures at this time. The mid-Antonine return to Hadrian's Wall provides the most attractive context for the rebuilding of the remainder of Hadrian's Turf Wall in stone. This event cannot be closely dated, and later contexts have been suggested, including a Severan date (Hassall 1984). A mid-Antonine date would, however, fit the available evidence. At Garthside (TW turret 54a), the first Turf Wall turret had collapsed into the ditch and had been replaced by a second free-standing stone turret and a length of turf wall and ditch on new alignment, before the Stone Wall which replaced the Turf Wall was brought up to abut the turret; yet this arrangement lasted for some time before the turret went out of use and was overlain by a rebuild of the Stone Wall. The whole sequence took place before the third century on the pottery evidence (Welsby 1985). At TW Milecastle 79, only Hadrianic-Antonine pottery was present, while purely Antonine pottery was absent. Unless the milecastle was rebuilt in stone on the eve of the advance to the Antonine Wall, a date immediately upon the return from that Wall seems likely (Bruce 1978, 253).

5.7.4 Communications

Something has already been said above about the possibility of a complete overhaul of the communications system of the northern frontier in the mid-Antonine period, including bridge building and strong links with the outposts and Scotland. This was a policy which perhaps did not long survive the second century, after which there seems (for a while) to have been a greater emphasis on maritime links than road links with Scotland. However, the Military Way supplied on Hadrian's Wall

in the Antonine period (Bruce 1978, 39; Bidwell and Holbrook 1989, 136) was to be an enduring feature. Its value had no doubt been learned on the Antonine Wall; it functioned, as on that barrier, as a lateral communication linking forts and milecastles (and with paths originally going off to some turrets). Just as the Antonine Wall Military Way shows evidence of bypass loops for travellers using it as an arterial route and not wishing to call at every fort, so on Hadrian's Wall a traveller could pass down to the Stanegate, much of which continued in use, for a more direct east-west route. Naturally, this is most noticeable in the central sector, where any direct traveller would wish to avoid the heights, and the two roads are widely separated. Here the Stanegate retained its garrison forts (Vindolanda, Carvoran). The original crossing of the North Tyne by the Stanegate is lost, but the branch road that would have carried the traveller up, to share with the Military Way the new bridge crossing the North Tyne at Chesters, is well known. East of here, as on the Antonine Wall, the military way would not have been a seriously inconvenient route for arterial travellers, and so only one road - the Military Way - is known to have existed after the Antonine period. West of the Irthing, it is possible that the Hadrianic Service road discussed above (5.1.6) may have continued in use as a route after the addition of the Military Way immediately behind the Wall.

Chapter 6

SECOND CENTURY LINEAR FRONTIER DEVELOPMENT IN NORTHWEST EUROPE: COMPARATIVE ASPECTS

By the later part of the second century, there were no 'porous' areas of unhindered movement remaining on the British or European frontiers. In this chapter, the developments described above in Chapters 4 and 5 will be compared in order to shed light upon the common characteristics and function of (as well as differences between) the artificial linear systems, and to show how it is possible to see individual systems being adapted to peculiar local conditions. The second century frontiers will be examined under four heads: first, the acceleration of a move towards a merging of the roles of mobile troops and frontier police. Secondly, the varying intensities of provision of installations in different areas. Thirdly, the function of the continuous barriers and associated installations themselves will be considered. In a final comparative section, frontier development over a long period of time in Britain and northwest Europe will be examined.

6.1 The continued transformation of a mobile army of occupation into a frontier force arranged in linear fashion

A shift in the Roman army's perception of the likely role of frontier forces may be glimpsed in the well-known decision, taken during the construction of Hadrian's Wall in Britain, to place a regular series of auxiliary garrisons on the barrier itself. Before this, the intention must have been either to man the milecastles and turrets with small detachments from

auxiliary units based some distance away, or to have based some special low-grade force in the milecastles. Such a distance between garrisons and frontier posts was, as we have seen, characteristic of the Taunus-Wetterau in the years *c*100-110, when fortlets stood in isolation on the frontier, presumably manned from the rearward forts. Such a division would always endure on the Raetian frontier. Against this background, the first scheme for Hadrian's Wall is not as anomalous as it might seem.

The early-second century, however, saw, in many places, the final abandonment of the division of roles between the garrisoning of a rearward area or road and the manning of a linear frontier. It is possible that the Odenwald frontier, probably late-Trajanic in date, sees the earliest conception of a unitarily planned linear frontier with all forces on the line. Here, however, where the frontier was driven anew through formerly trackless territory, putting the forts close to the line must have seemed the obvious thing to do. There was no pre-existing road or network of garrisons in this area. In the Taunus-Wetterau by the Hadrianic period only Friedburg remained as a fort in the hinterland of the frontier; on the line itself auxiliary units were established at Zugmantel, Saalburg and Rückingen, and *numeri* at other sites formerly occupied by fortlets. There may still have been a division of duties between the inhabitants of full auxiliary size, and *numerus*-size forts, but now almost all of these units were based on or near the frontier line itself.

The army did not move onto the frontier itself in all areas with equal speed. In part, this has to do with varying difficulties of communication between rearward garrisons and the established frontier line; in part, perhaps, with a greater military need to have troops concentrated on or near the frontier itself in certain areas than others. The comparative advance of Hadrian's Wall and the Raetian frontier from rearward road dispositions is highly instructive.

For reasons of security, observation and convenience, Hadrian's Wall was sited not on, but to the north of the Stanegate, which remained in use as an arterial route, and where, presumably, much of the Wall's garrison was originally intended to lie. As we have seen, there have been expectations of a linear frontier system on the Stanegate, although it was argued above that there is no evidence for such a system; and it is interesting that when a linear system was applied, it was a quite different alignment, placed in relation to, but away from, the Stanegate road (cf Figs 17 and 18). As we saw in the detailed examination of the communications of the Wall (5.1.6 above), the Tyne-Solway frontier system had a basic problem. The Stanegate was already in existence, and was to remain an important route. The north rim of the Tyne Valley, the Whin Sill and the north side of the Irthing all lay at varying distances to the north of the road, and were not always conveniently placed for contact with it. This must be part of the reason why the forts had to be moved onto the Wall itself.

The deliberate siting of an artificial frontier away from the line - along the road - that it might otherwise have taken through inertia finds a close parallel on the Raetian frontier. Almost exactly the same relationship between a road and a linear frontier may be seen there. When, probably in the decade *c*110-*c*120 (or shortly after), the first system of towers came to be laid out, between Ellingen and Ruffenhofen, this was to the north of the penetration road that had been pushed out from the Danube and Kosching in the Flavian period, and which ran from east to west past the northern fringe of the Nördlinger Ries (Fig 10). Just as on the Stanegate, the forts along this road had guarded river crossings (Weissenburg, Aufkirchen) and a road junction (Gnotzheim). When, *c*100-110, the first sites were established to monitor movement into the gap through the Schwabian Alb and Frankische Jura described above (1.7.2; 3.5) - Ellingen, Theilenhofen and Gunzenhausen - it is significant that they were not placed on the pre-existing road. These forts marked the line that would later be taken by

watchtowers and palisade, and when Dambach was added to the frontier it was built north of the road, right up against the watchtower line. The advanced frontier sites did occupy a slight ridge of land, although by no means as prominent a landmark as the Whin Sill used by Hadrian's Wall.

This apparently deliberate situation of frontier control installations to the north of the pre-existing road line should indicate that at some date in Raetia, as in Britain under Hadrian, there was either a realisation or a policy decision that there would be no further advance on this sector of the frontier. In other words, the structural similarities between the origins of the Raetian frontier and Hadrian's Wall (even though the time scale is different) show that rather than growing up through inertia or default, the frontier in Raetia was at some time deliberately situated to complement the pre-existing road.

It is possible to suggest convincing roles for these rearward road forts which have no connection with an incipient linear frontier to the north, and to see how the arrival of that linear frontier rendered some, but not all, of the rearward sites redundant. Just as on the Stanegate, the Raetian road forts were primarily concerned with safeguarding routes and traffic. Weissenburg lay at the intersection of the Roman road and the north-south route taken by the Schwabische Rezat. Gnotzheim lay at an important intersection of north-south and east-west routes. Unterschwaningen lay where the Mühlbach ran from the north towards the *Römerstrasse;* Ruffenhofen lay at the confluence of the Sulzbach and the Wörnitz, the latter presumably bridged or forded by the Roman road in the vicinity.

Just as on the Stanegate in Britain, a number of sites remained in use on the Raetian frontier road after the crystallisation of the frontier to the north: Weissenburg, Gnotzheim, and Ruffenhofen; these may be compared to Corbridge, Vindolanda, Carvoran and Carlisle, all of which most probably (5.2.2 above)

remained as fort sites after the garrisoning of Hadrian's Wall; the central two remained the bases of auxiliary units until the end of the Roman period. On the Raetian road, there is even an example of civilian development following the military abandonment of a site. This is at Unterschwanigen (Baatz 1975, 231). The civilian development of this site was perhaps aided by its situation on an important road; it brings to mind the possible civilian occupation of the Stanegate site of Nether Denton, whose military occupation is thought to have ended in the Hadrianic period, but which has produced later material (Bruce 1978, 210-11). The redundancy of the very short-lived site at Unterschwaningen and its replacement by nearby Dambach on the frontier line also provides a possible parallel for the apparently brief use of a Stanegate site such as Brampton Old Church, and its probable replacement by Castlesteads in the completed Hadrian's Wall scheme.

If there is a general rule, it would seem to be that the division between orthodox military occupation and road security and linear frontier manning was best maintained where the threat of infiltration or attack was lowest. Thus in Raetia, where the lowest density of frontier garrisoning occurs, the auxiliary forts never really became an intimate part of the linear frontier, much of which was always garrisoned by detachments, probably from the remote auxiliary forts. On the Neckar, the forts lining the river never lost the aspect of stations safeguarding a vital route and a fertile area. On the outer frontier, by which time infiltration was perhaps a growing problem, the auxiliaries and *numeri* were based closely alongside each other: the former, while still formally separated, have drawn closer to the subject of linear frontier control. In the Wetterau the auxiliaries were intimately involved from the beginning in the supervision of the frontier as the absence of *numeri* and the existence of fortlets for detachments from the auxiliary units testify. In this context it is interesting that Britain provides the most extreme example of auxiliaries and their bases becoming integrated into

the function of the linear barrier: first on Hadrian's Wall and then in an even more complex way on the Antonine Wall. The suggestion sometimes made that a separate force, based in milecastles, existed for the patrol of Hadrian's Wall will be considered below (6.3.3).

In Germany, forts were never physically incorporated into the continuous frontier in the manner of Hadrian's Wall, probably because the nature of the building materials did not facilitate such a relationship, and on the older stretches of frontier, such as the Wetterau, the fort sites pre-dated the frontier line, which would have to have taken an odd course to incorporate the forts. In the absence of a strong reason for doing so, these long established fort sites were not readily abandoned; the continuing distance between auxiliary forts and the running barrier, particularly in the Wetterau, indicates that in contrast to Britain it was felt for a considerable time that the forts could be left where they were. Interestingly the mid-second century provision of large fortlets (each related to an auxiliary fort) on the frontier line suggests that the need was increasingly felt for a garrison presence on the continuous barrier itself. In Raetia, where the *Teufelsmauer* might have been suitable for attaching to fort walls, almost all of the forts were already established to the south of the watchtower line, and even after the mid-Antonine period when the Wall was built, no need was felt to integrate the two.

6.2 Varying densities of provision of installations in the linear systems

Discussion of the function of linear frontiers has tended to concentrate upon the suitability of watchtowers for observing infiltration and summoning help from larger installations, and upon the suitability or otherwise of the continuous barriers as fighting platforms or devices for repelling attack. Less

attention has been paid to the detailed variations in the density of provision and siting of forts, fortlets and watchtowers, yet much can be learned from the different patterns to be observed from sector to sector of the frontiers considered.

In Britain there is a fairly constant provision and spacing of installations with which to compare the variously spaced and irregularly provided installations of the continental frontiers. Obviously, there are imponderables, such as the lack of knowledge of how many milecastles and turrets were simultaneously held. Furthermore, we must be clear about exactly which stage of development on the British frontiers is being used in any given comparison; changes such as the apparent abandonment of many turrets at the end of the second century must always be borne in mind. In what follows, unless stated otherwise, the Antonine Wall will be considered in its completed (secondary forts) form, and Hadrian's Wall in either its completed Hadrianic, post mid-Antonine restoration, or post-c180 form, as specified. For Upper Germany and Raetia the great problem remains the dating of the period of use of minor installations. In what follows, for the sake of comparison, it has been assumed that undated stone watchtowers and fortlets were in use from the time of the completion of the outer frontier (mid-Antonine period) until some date in the third century. This accords with the more prolific dating evidence from the forts and is not contradicted by those minor sites that have been excavated.

The survey of the installations in the individual *Strecken* of Upper Germany and Raetia (4.7) revealed that there is no evidence for regularity of spacing. Rather, it is possible in most cases to ascribe particular roles to fortlets, and to account for the siting of both fortlets and forts by their proximity to natural corridors of movement, natural features, and suspected or known native populations. Nevertheless, it is possible to suggest that several 'types' of frontier system may

be recognised, in the same way that 'remote' and 'populous' watchtower systems were distinguished in section 3.1.1.

6.2.1 'Remote' frontiers

The Taunus (*Strecken* 2-3) in Upper Germany was characterised in its first century form (3.1.2) as a remote frontier, with widely spaced, small fortlets and a very small available garrison which, even when supplied on the frontier line itself, comprised low grade *numeri*. This pattern persisted in the second century. In *Strecke* 2 only two forts existed in the mid-second century, and both probably contained *numeri*, with Holzhausen perhaps only being promoted to cohort-size at the end of the century. *Strecke* 3 also saw a build up of larger garrisons over time, but even at the height of the system two out of four of the forts were of *numerus*-size. In *Strecke*n 2-3, the average spacing between installations of larger than watchtower-size was some 4.48km; however, this figure includes a series of closely spaced fortlets (Altes Jagdhaus, Heidenstock, Lochmühle) which probably originated in the mid-second century, and the average spacing would once have been considerably wider.

Most comparable to the remote Taunus frontier are the successive lines which crossed the northern Odenwald. The origins of the earlier, inner line (*Strecke* 10, northern part) were examined in section 4.7, and the similarities to the Taunus sector noted (Use of *numeri;* fortlets few and small). The most remarkable feature of the original northern Odenwald layout is the series of similar and relatively very closely spaced (5-6km) *numerus* forts. The fact that smaller units were spread along this sector does not alone explain the close spacing of the forts, for nothing like it is seen in the Taunus, where *numeri* probably also predominated in the earlier arrangements. In fact, the arrangement of the Odenwald *numerus* forts has an air of regularity about it which is reminiscent of

the constant spacings between installations used on the British frontiers. Apparent confirmation for this can be gained by comparing the northern part of the outer frontier (*Strecke* 7) which replaced the old northern Odenwald line in the mid-second century. Here, conditions were similar; the same kind of impenetrable plateau, without large population or obvious corridors to fertile tracts, as had been secured by the old northern Odenwald line; indeed in this sector the new line was never more than 20km east of the old. But on the new frontier the old series of regularly arranged *numerus* forts was not repeated. In part, this must have been because the Main now served as the frontier for the northernmost part of the outer line; even so, in the long stretch between Miltenberg and Osterburken there was only one *numerus* fort, Walldürn. Also of note is the special type of fortlet employed in *Strecke* 7 and the northern part of *Strecke* 8; the four known examples are large fortlets, at 0.20ha each. However, unlike the large fortlets of 0.40ha noted in *Strecke* 4, none of these occurs in close association with an auxiliary fort. Indeed, rather than supplementing a series of large auxiliary forts, these sites seem to compensate for a generally wide spacing of garrisons along the length of *Strecke* 7 and the northern part of *Strecke* 8. Two of the three forts are *numerus*-sized, but their spacing is noticably wider than on the superseded northern Odenwald frontier where the *numerus* forts are very closely spaced; it is almost as if the section presently under consideration was laid out in the light of certain lessons that had been learned from the northern Odenwald. In particular, it may have been realised that in such an intractable landscape such a density of even low-status troop provision was not necessary, and that the task of surveillance could be effectively carried out by fewer such units, spread economically by the use of large detachments in widely spaced fortlets between the forts that were normally themselves only of *numerus*-size. This suggests that the original regular provision of *numeri* and their forts in the Odenwald may have represented an example of ideal frontier planning, as in the regularity seen on Hadrian's Wall.

That the 'ideal' regular spacing provided in the Odenwald was more than was necessary is implied by the more flexible situation seen on the successor line. That the density of installations, if not the regularity, of Hadrian's Wall was a practical necessity and not a mere example of cosmetic frontier arrangement is implied by its repetition when in Britain the frontier was moved forward to the Antonine Wall. Here again the units were disposed more flexibly on the advanced frontier, but rather than there being a reduction in their overall proportional density, there was a marked increase. If the northern Odenwald does represent an ideal arrangement of garrisons along a linear frontier, its date will be of interest: it was argued above (1.4.2 and 1.5.2) that it will have originated in the decade 100-110. Combined with the ideal scheme for Hadrian's Wall originating in the 120s, this suggests that the early second century contained the apogee of idealised regular linear frontier planning.

6.2.2 'Populous' frontiers

In the second century the Wetterau still betrays its different nature, more fertile and accessible than the remote Taunus, by virtue of the different arrangement of its frontier installations. It has been suggested (3.1.2) that an early disposition of large, free-standing auxiliary forts pre-dated the installation of a patrolled frontier line; the initial concern was evidently with the military occupation and defence of a populated area rather than with police-work against clandestine infiltration. The same division of roles was apparent in the Wetterau long after a patrolled anti-infiltration line was formed there. The predominance of auxiliary forts, in contrast to the widespread use of *numeri* on the Taunus and in the Odenwald, points to the possibility of a more conventional military role for the troops here. This sector also contains a remarkable series of (by the mid-second century) large fortlets - Degerfeld, Staden, Haselhecke - each

found in association with an auxiliary fort, and perhaps representing the bases of detachments on long-term frontier police duty. Here is an interesting contrast with Hadrian's Wall, where no large fortlets intervene between the auxiliary forts and milecastles; perhaps these fortlets came to compensate for the distance of the auxiliary forts from the frontier line as pressures on the frontier grew in the second century.

Military activity on the Wetterau frontier in the mid-second century was evidently complex and intensive. In section 4.7 the many possible routes crossing into the Wetterau were noted, and the point established that at least the earlier fortlets, and the auxiliary forts and their accompanying large fortlets, were probably situated in relation to these routes. The average spacing of installations larger than towers (including forts) is less than 3km, a clear contrast to the wider average spacing of the Taunus installations.

These conclusions raise a problem of interpretation. Whereas there can be little doubt that the general role of the military was directed to the security of the province, it could be argued that the relationship we have established between military installations, particularly fortlets, and cross-frontier routes is a result not of a wish to prevent incursion via these routes, but rather part of an active facilitation of civilian movement in and out of the province: in the same way, the milecastles on Hadrian's Wall have sometimes been seen as primarily customs posts. Does the 'populous' frontier type indicate not the level of external threat, but rather the degree of peaceful movement? Or is there an element of both? It will be argued below (6.3.3) that the comparative plans and locations of fortlets suggest a purely military rather than a quasi-customs function. Furthermore, the key to establishing the presence of sanctioned civilian crossing points is surely the presence of suitable gateways in the continuous barriers rather than merely the

existence of fortlets themselves. The fact that fortlets in Upper Germany are apparently placed in relation to corridors approaching the frontier, yet at these points there are not always, as far as can be ascertained, breaks in the *Pfahlgraben*, ought to imply that the fortlets were sited with unwelcome approaches to the frontier in mind. It could be argued that primary causeways might have been removed late in the frontier's life; on the other hand, the late appearance in some sectors of extra fortlets unrelated to topographic features, as the frontier faced an increasing problem of incursion, illustrates that their prime concern was with hostile, not benign, movement.

The southern part of the original Odenwald frontier seems to provide an intermediate stage between the extremes of remote and populous frontier defined by Taunus and Wetterau. Here, where the plateau, not as afforested in antiquity as the northern Odenwald (Baatz 1975, 168) was more passable than the valley ridden north, and allowed access to the Neckar area, full-sized cohort forts were provided; but their very wide spacing, and the limited number of fortlets, each at a point where movement across the frontier might be anticipated, suggests that infiltration from across the area by means of predictable routes posed the greatest problem, whereas in the Wetterau the protection of a population against inroads from many possible directions necessitated a more evenly spread coverage. The presence at Neckarburken, alongside the cohort fort, of a fort for the *numerus Brittonum Elantiensium*, suggests the manning of the towers along large tracts of the southern Odenwald frontier by low grade troops, and that therefore the infiltration problems were, away from the obvious routes, those of a 'remote' frontier rather than the Wetterau type.

6.2.3 'Friendly frontiers'

If we are right in deducing that proportionally closer spacing and larger garrison of the Wetterau sectors indicates an infiltration problem that was correspondingly greater than in the Taunus or Odenwald, then there must be an even more striking implication for the Raetian land frontier. The density of units and spacing of installations along the Raetian frontier was, compared to Upper Germany, very low. The average spacing between installations of greater than watchtower-size approaches 10km in *Strecke* 12, double that in the Taunus and over three times the average spacing of the Wetterau. There is very little use of fortlets. *Strecke* 13 contains not a single known fortlet: the average spacing here was over 12km. In both of these *Strecken* it was argued in section 4.7 that the forts, which almost always lay well to the rear of the watchtower line, were predominantly concerned with the protection of roads behind the frontier.

The frontier line, itself a very late development in these parts, seems incidental, an afterthought that functioned independently from most of the forts. The large, widely spaced *'Blockhaus'* type towers were all that small detachments required for a safe supervision of the frontier. This is rather a similar conclusion to that reached above (3.5) to explain the wide tower spacing and lack of full-sized auxiliary units in the old northern Odenwald; in the Raetian example it was not even felt necessary to concentrate whole units of even lower grade troops. Very small detachments from the distant, rearward cohort forts could safely suffice. In *Strecke* 14 it was observed that there is a notably denser provision of installations; this is the only sector of the Raetian frontier where small forts - perhaps held by auxiliary detachments rather than *numeri* - appear in some numbers, closer to the actual frontier line than the rearward auxiliary sites. Now also there are fortlets. The spacing is, as ever, highly irregular, as the installations are sited according to local

needs. As might be expected, a topographic reason for the change in density is apparent; an opening in the high plateau traversed by the frontier invites entry from the north into the fertile area around Weissenburg and the Nördlinger Ries. Here there was apparently more movement to be observed, but it is notable that the average spacing of installations of above watchtower-size, at about 5km, is close to that observed in what was characterised as a 'remote' frontier such as the Taunus, adapted to small scale infiltration.

Strecke 15 represents a reversion to the lightest type of linear frontier holding; again the auxiliary forts were detached far behind the observation line and as intimately connected with the road system as with linear frontier control. The average spacing of installations larger than watchtowers, even including the postulated fort site in the Schambach valley, was very wide, at over 8km. Even then the fortlets may be late additions to the system.

So the conclusion reached above (3.5) - that the Roman army did not encounter resistance in northern Raetia as formidable as that which it encountered in other frontier areas - is borne out by the appearance of the completed frontier system of the mid-second century in *Strecken* 12-15. Recent studies by German scholars suggest that there might have been little or no indigenous population in parts of Raetia (Sommer 1990, 129; Hüssen 1990); this has long been considered to be the case for much of the area immediately north of the frontier. The Raetian frontier remained 'open' long after any other, and it was evidently crossed by several important trade routes; the traffic of the Hermunduri attested by Tacitus (Germania 41) is but the most famous evidence for this. The form of the completed frontier of *Strecken* 12-15 shows that the earlier characteristics of this sector endured until at least the mid-second century, and call for the designation of a third general frontier type, that of a 'friendly' frontier, where

neither formidable resistance to the Roman military nor serious attacks from outside were commonplace.

Intimately linked to this 'friendly' frontier was the 'open' system of forts which existed on the Neckar before the mid-second century advance to the outer frontier. The river, as argued above (1.4.3; 1.5.3), was a garrisoned thoroughfare rather than a controlled border. The evidently populous area - later to surround a self-governing *civitas* right on the outer frontier line - blended into the open and porous 'friendly' frontier land of western Raetia.

6.2.4 The frontier types and their British counterparts

The greatest contrast of all is that to be observed between the regularity of the provision of installations on the British walls and the general lack of regularity to be seen in Upper Germany and Raetia. Despite minor variations and addtitions, it is clear that in general terms the fortlets of Hadrian's Wall were provided at one mile intervals, with pairs of watchtowers at regular intervals in between. The addition of the primary forts to the Wall also appears to have followed a scheme of fairly regular spacing. This regularity is the case despite the variations in the terrain - and presumed densities of native population - through which the Wall ran. In short, Hadrian's Wall was planned and executed with a neatness and rationality that ran beyond the merely functional. A regularity modelled upon Hadrian's Wall as built is now widely accepted for the Antonine Wall; here the change wrought by the addition of secondary forts to the original scheme was of a more striking order.

The regularity of the British frontiers is partly to be explained by the circumstances in which they came into being. Rather than being a development of a frontier line arrived at at an early date, and allowed to develop over a long period,

each of the British Walls represented an abrupt policy change and was built on a line where no linear frontier had been conceived of before. With few or no pre-existing sites, a fresh blueprint could be imposed, and all of the new sites bound into a unitary scheme. This could simply not be the case in the Taunus-Wetterau, on the Main or Neckar, or on the oldest parts of the Raetian frontier. Significantly, it may have been the case when the first Odenwald frontier forts were built in virgin territory. This factor alone, however, cannot explain the exceptionally unitary nature of the British Walls. It fails to explain why certain parts of the Upper German and Raetian frontiers which were built at one go, in hitherto unoccupied territory - the outer frontier beyond Odenwald and Neckar, and the completed Raetian line - display no more regularity in the spacing of their installations than the others. The only hint of a move towards unity of design is glimpsed in the dead straight layout of over 80km of the Upper German outer frontier.

A second part of the explanation would seem to be that the 'new' stretches on the Continental frontiers were strictly limited in scale, and formed parts of much wider systems. The new outer frontier of Upper Germany was in excess of 100km in length, but it was clearly conceived as part of something larger; as a link between the new forward dispositions of Raetia and the old system of forts on the Main. The Raetian frontier, on the other hand, had been extended piecemeal. When the section from Ruffenhofen to Buch was laid out it deviated around pre-existing forts; the final, 'new' frontier, first from the Kocher (Aalen) to the Rems, with a final addition from the Rems to Lorch, was laid out in two separate stages, and rather than being conceived in isolation, was designed to unite other dispositions in Raetia and Upper Germany. In Britain, in complete contrast, each of the frontier Walls stood in utter isolation, forming a whole frontier across a narrow isthmus. They were not sited or laid out with reference to any pre-existing or neighbouring linear frontier system; evidently

these circumstances made them more desirable candidates for a unitary and regular design. This may also lie behind the initial conception of the Tyne-Solway frontier as a substantial Wall; J Crow has suggested (1986) that the nature of the Isthmus (and perhaps the level of the perceived threat) may have invited the use of a form influenced by defensive long-walls elsewhere in the ancient world.

Both of these explanations assume that the designers of Roman frontiers would, where possible, make use of neat and rational dispositions of installations for their own sake; for more than purely functional purposes. However, a third possible line of explanation would see the design of a rational, constantly regular system of openings and installations, as on the British Walls, as necessitated by the circumstances of local infiltration. The installations on the German frontiers, while displaying none of the regularity of those in Britain, are not simply randomly situated: it can be shown in most cases that they are situated in relation to corridors of movement. At first sight, the British Walls, rather than merely making regular the spacing between installations of a similar proportional number to that seen on the Continent, are actually provided with, proportionally, a much greater number of installations than on even the most heavily garrisoned German *Strecke*.

But there is a problem here. The regularity of fortlets on the British Walls disguises a lack of knowledge about how individual examples actually functioned. In particular, any unexcavated milecastle looks like a type of German fortlet, but from the tiny number excavated, it appears that not all of them functioned as fortlets. Some seem to have served merely as a defended enclosure for a very small group of men manning the tower and gate of the milecastle. Without knowing the proportions of each, it is difficult to compare the density of troop provision in fortlets on Hadrian's Wall with that on the continental frontiers. It would therefore be simplistic to see

Hadrian's Wall as a vastly more endangered frontier merely because of its high density of fortlets.

On the other hand, the existence of fully garrisoned milecastles is known, and the close proximity of two - 47 and 48 - suggests that there were areas and special points where such detachments might be concentrated. This sort of flexibility, which might be disguised by the regularity of the ideal Hadrianic design, is much more reminiscent of Upper Germany. Even without a knowlege of the interiors of many milecastles, the concentration of fortlet-type milecastles formed by 47 and 48, combined with the spacing of the auxiliary forts, suggests that the section of the continental frontiers which Hadrian's Wall would most resemble would be the endangered Wetterau, with its fairly frequent occurrence of fortlets at necessary points and closely similar provision of auxiliary forts.

If the completed Wall of Hadrian truly represented, as some have suggested, an unsuitable, blindly followed blueprint, or overkill, it is curious that the same system, with eventually an even greater proportional density of garrisoning, was applied in Scotland. The provision of the secondary forts on the Antonine Wall may be seen as an extension of the postulated policy of 'flexibly' garrisoning different milecastles in different ways. Now, however, instead of garrisoning certain of the fortlets, it was found necessary to replace some of them altogether with additional forts to house larger detachments.

The absence of an equivalent to the Vallum on the Antonine Wall may be related to the 'secondary fort' decision. If the Vallum on Hadrian's Wall was intended to direct movement from the south away from the gates through the wall (the milecastles) that were reserved for mundane military use, and to direct traffic to the few major gates and the forts, it is possible that the blanket provision of forts on the Antonine Wall, and the consequent downgrading of the fortlets, rendered such a

device unnecessary. Whichever opening was approached would have a nearby concentration of troops.

It might be argued that the absence of the Vallum indicates a higher level of tolerated civilian movement across the Antonine Wall, which, placed arbitrarily on its isthmus, well south of the cultural division at the edge of the Highlands, may have bisected a native community. However, there are serious objections to the use of fortlets such as those on the Antonine Wall for civilian passage (below 6.3.3), while the greatest density of secondary detachments is placed where such movement might be least expected - at the west end, in front of the Kilpatrick Hills, and on the ridge in the central sector. The east end, which looked into the territory embraced by the outpost forts, seems to have been more lightly held.

It is suggested, then, that the density of troop provision suggests a more complex or more formidable threat of attack or infiltration than that faced on Hadrian's Wall, itself a well-garrisoned and formidable frontier when compared to the most endangered of 'populous' continental frontiers. It is also now difficult to argue that there was an overprovision of troops on the Antonine Wall for political reasons. The secondary forts were not part of the original scheme, but were seemingly added in the light of local experience. It has been thought that the Antonine Wall was more lightly garrisoned in a second period of occupation: but this assumes the existence of a general 'Antonine II' period on the northern Wall, a notion questioned above (5.5.2). It is probable that the Antonine Wall in its completed state had a single period of occupation, after which troop withdrawals made the system untenable, and perhaps only one or two outposts briefly survived.

The extension of a system of milefortlets and towers to the Cumberland coast, besides being wholly exceptional in extending the principle of a continuous cordon of small installations, and even possibly a running barrier, into a non-land frontier

context (5.3 above) would at first sight represent an over-reaction to the problems of infiltration from the sea, for much of the system did not outlast the second century. It reverted in the later Roman period to being a system of auxiliary forts most probably interspersed with minor installations as necessary, in other words just such a system that would be expected on any of the river frontiers of northwest Europe before the mid-second century. Nevertheless, the provision of the Cumberland coastal system may be seen against the same background of nervousness, and high rating of the frontier threat in northern Britain that led to the proportionately dense provision of installations on Hadrian's Wall and the Antonine Wall.

Nor is the provision of such installations along this particular non-land frontier as mystifying as it has sometimes (Maxfield 1990, 12-13) seemed; unlike the great river frontiers, where there could be direct Roman observation of activity on the opposite bank, and where the location of the Roman frontier must be known to all comers, the Cumberland coast looked out upon the several land-masses of the much traversed Irish Sea Province (Bellhouse 1989, 62; 69-70); there was a need for the surveillance of traffic - and no doubt attackers - from quite unpredictable directions, and a need clearly to identify the Cumberland coast, which those traversing the sea might claim to be one coast among many, as that belonging to the Roman province. But perhaps most importantly, if the evidence is taken at face value, we are left with the simple possibility that in Continental Europe second century peoples were prepared to respect river lines as Roman frontiers to an extent that the inhabitants of the Irish Sea Province, when faced with the Cumberland coast, were not. Nor, just because the regular system of towers and fortlets was out of use by the end of the second century, can we be sure that the Cumberland coast did not receive new installations (after the manner of the Continental river frontiers, or indeed, the Yorkshire coast) in the late Roman period. It is

only the fairly regular system that has allowed so much of the Hadrianic system to be discovered, and late Roman towers, may, as on the great river frontiers, have displayed much less regularity of spacing.

To summarise: on the Upper German and Raetian frontiers, different densities of frontier installation correspond to differing threats and corridors of access. The most heavily policed frontier sector of the whole range, that encircling the vulnerable Wetterau, compares most closely with the British Walls. If the principle of explaining the different frontier densities of the continent is extended to Britain, the conclusion must be that raids or infiltration were anticipated at least to the same degree in north Britain as on the most dangerous part of the Upper German frontier, and that this was a situation that persisted, ie was not the result of an initially over-pessimistic assessment of the situation. This conclusion runs counter to much recent thought about Hadrian's Wall and its Scottish version (see, e.g., Mann 1990): but attempts to denigrate the role of the British Walls as barriers against formidable or perceived threats, and to promote aspects of eccentricity, psychological intimidation, and economic regulation to account for their design, have generally treated of the British Walls without a really detailed comparison with their close relatives in Upper Germany and Raetia. On those frontiers there is little hint of the aspects so often invoked to explain the appearance of the British Walls. Rather there seems to be a rational correlation between the provision of installations and level of threat to sectors of the frontier. There is no good reason why the British frontiers should not be analysed in the same way, and the obvious conclusions drawn: that formidable border problems required formidable barriers to be built.

6.3 The function of individual frontier installations

It should be clear from the surveys in Chapters 4 and 5 that whatever the variations in density of the provision of frontier installations, similar types of installation tend to occur, with local variations, on all or most sectors of northwestern linear frontiers. An attempt is here made to classify these types and to examine what can be learned of their functions from the comparison of their contexts in various frontier arrangements. They are examined under the headings of continuous barriers; gateways; fortlets; towers; forts; communications.

6.3.1 Continuous frontier barriers

The continuous barriers were co-existent with the type of watchtower frontier we have already discussed. These artificial systems only appear where natural obstacles such as rivers do not exist, and never appear along the banks of the great rivers. Hadrian's Wall and the Antonine Wall are exceptional among northwest European land-frontier barriers in not having evolved from a pre-existing watchtower system. The explanation for this is that the British Walls were each built, as a result of a new policy, where no linear frontier had stood before. It will be observed in Chapter 7 that outside northwest Europe and Dacia there are no true occurrences of continuous obstacles of this kind (the African *fossatum* is seen as possessing a different character), just as there are no watchtower cordon frontiers outside these regions. In this light it seems fair to suggest that the purpose of artificial barriers was probably closely related to that of watchtower systems.

6.3.1.1 Provincial Boundaries

It was suggested above (3.2.1) that the earliest watchtower cordons cannot have been intended to denote political boundaries because they were often only partially provided along the front of an occupied area. The same objection would seem to apply to the continuous barriers. A palisade existed on the central part of the Raetian frontier before the frontier was closed by the abandonment of the Alb sites and the extension of a palisade west of the Kocher to Lorch in the decade *c*155-165. This should show that, in origin at least, the continuous barriers can no more have denoted political boundaries than the watchtower cordons which they so often supplemented.

It must be admitted, however, that through the second century there was a tendency for artificial barriers to be consolidated and extended so that the only parts of the frontier remaining without them were the major rivers. It might be argued that over a period of time the artificial linear frontiers came to be thought of as denoting the boundaries of the empire, and hence of its frontier provinces (see 3.7 above). It is important to note, however, that in whatever way the linear barriers came to be regarded, this was unlikely to have been their original purpose.

One further notable aspect of the new continuous barriers of the early second century - and later - is the heterogeneous nature of their construction, in terms both of scale and materials. Most clearly seen in the contrast between the German palisade and the Raetian stone Wall, or between either of these and Hadrian's Wall, this variation from province to province might be taken to imply that the barriers were intended for provincial boundaries. However, this is a phenomenon also observed within individual provinces, as in the original division of Hadrian's Wall into turf and stone sectors. Here the change in materials cannot have had a

political significance, but is more likely to have been the result of the division of the work amongst the army and a reflection of the local availability of building materials.

6.3.1.2 Defensive lines

The absence of a walkway atop the various palisade types and the Raetian Wall confirms that, if Hadrian's Wall in Britain had a role in any way analogous, it can never have been intended as a fighting platform, as is now generally believed since Collingwood's (1921) attack on the 'fighting platform' notion. Further confirmation of this may be seen in the frequently wide separation of the fighting auxiliaries from the linear systems. It has been observed that 'Surely the fact that the units were not brought up to the Wall in the first scheme [for Hadrian's Wall] is decisive against any notion of fighting from the wall top' (Dobson 1986, 6). The same separation of the fighting units is seen very clearly in Raetia, where much of the linear frontier was always distant from rearward auxiliary forts. When examined in detail the unsuitability of the German-Raetian barriers as a means of withstanding concerted attack at a given point is apparent in several places. The list of places in *Strecken* 3 and 4 where the frontier line is dominated by higher ground immediately beyond shows that 'die Anlage nie der Verteidigung dienen sollte' (Klee 1989, 93). There are also the places listed in 4.7 where the *Pfahlgraben* is inexplicably broken or interrupted, sometimes for several kilometres at a time. In these cases, the palisade was apparently everywhere supplied. It is notable that the occurrence of these breaks coincides with those frontier areas we have characterised as 'remote'. The rigorousness with which the running barriers were upgraded and maintained seems, therefore, to form part of the same pattern of differential density of installations according to the degree of threat to a frontier area. Further unevenness in their provision is seen in the early provision of a

Flechtwerkzaun pre-dating the general palisade in parts of the Wetterau; and in the early provision of palisades in limited sectors of the Raetian frontier while other parts had not even been closed with a frontier of linear type. This makes it difficult to see the continuous barriers themselves as defensible lines; that is not to say that they could not aid in the military interception of formidable parties of raiders, although such attacks were clearly more frequent in some sectors than others and therefore count as a persistent security problem rather than one of strategic or tactical defence.

The absence of walkways on top of the Continental barriers has also sometimes been cited in support of the possibility that Hadrian's Wall did not possess a patrolled top. Hadrian's Wall, however, was so self-evidently exceptional as an architectural conception, and in other ways - note the building of the Vallum, a unique feature - that the evidence of the Continental frontiers cannot be considered decisive on this point. The archaeological evidence which suggests the existence of a wall-walk on Hadrian's Wall was considered in 5.1.5 above.

6.3.1.3 Regulators of movement

Are we correct to think in terms of security primarily against raids? An alternative view would see the continuous barriers as a means of checking essentially peaceful movements of local peoples and their flocks and herds; after all, the barriers must often have cut arbitrarily through communities and their lands, as the pre-Roman agriculture now so commonly attested underneath Hadrian's Wall illustrates (Fowler 1983, 153-5). Such movement, especially if likely to disturb settled peoples within the occupied zone, might be considered a grave nuisance by the Roman military. All of the running barriers would have been effective in preventing unauthorised movement of this

sort, although if it was simply a question of migrating populations and herdsmen looking for new pastures, one would imagine that the original watchtower systems would have sufficed to detect and intercept the large and slow-moving groups that would have been involved in such social and economic movement. Later, in Upper Germany and Raetia, not only do we see the addition of the first simple fence-like barriers, but then they grow ever more formidable and elaborate, to an extent that is not wholly explained by the need to construct them in more permanent materials.

It is notable that Caesar's wall built against the migration of the Helvetii was - if his account is not hopelessly exaggerated - intended to obstruct a military invasion directed towards the conquest of Gaul, and not a simple drift of population. The purpose of the Helvetii was to submit the whole of Gaul to their power: *totius Galliae imperio potiri* (*BG* 1.2). Caesar's wall was 19 miles long and sixteen feet high, blocking the obvious migration route of the Helvetii between Lake Geneva and the Jura range, and had garrisons posted along it at intervals (*BG* 1.8). The Helvetii attempted to break through the barrier forcibly but the barrier held them up while troops concentrated to repel them with missiles. Just as was suggested above (3.2.4) for the watchtower systems, continuous barrier building grew out of a long tradition of building, familiar to the Roman army, which was derived essentially from city defences and linear siege-works.

It might be argued that the increasingly elaborate barriers reflect an increase in the numbers of pastoral peoples wishing to move in and out of, or find space within, the occupied zone. Interestingly in this context it has been suggested, on the basis of pollen-diagrams, that the very presence of the Roman army in frontier zones in northwest Europe may have caused a breakdown in the normal pattern of agricultural production, leading to a greater competition for available food-producing land and precipitating a decline in cultivation in favour of

herding of pasture animals (Groenmann van Waateringe 1983). It is suggested that these changes may have begun to occur earlier in the Roman period than hitherto thought. The steady elaboration of the barriers in Upper Germany and Raetia does indeed suggest (6.4.6 below) that whatever threat the frontiers were facing was a growing one. However, if a breakdown in the traditional agricultural strategies of local peoples did take place from the early second century onwards, its effects will have been felt in ways more dramatic than merely numbers of animals being herded in the direction of the frontiers. The resulting destabilisation of traditional societies is just as likely to have led to an increase in the tendency to raiding and endemic warfare conducted by extra-tribal retinues and their warrior leaders (who despised agricultural practice) which is so vividly recorded by Tacitus, and which apparently became increasingly characteristic of these societies from the time of Caesar onward (Thompson 1965; Cunliffe 1988, 174-77).

So while changes in agricultural strategies amongst native peoples on the frontier may well have occurred, these would seem less likely to have been the primary factor in the formation of the artificial barriers than a tendency, perhaps related to the agricultural change, towards increased infiltration, raiding and attack. Tribes could, if under pressure from other tribal movements, or if led by a powerful leader, just as Orgetorix had led the Helvetii in Caesar's time, resort to mass-migration; the move of the Marcomanni from the Main to Bohemia (as a result of Roman pressure) under Maroboduous is a further example. Such tribal movements must have involved all levels of society, and show that there was no simple division between warrior initiatives and movements of non-combatant pastoralists. Nevertheless, as Caesar's account of the Helvetian invasion makes clear, violence would be uppermost in the attempts to force such mass-movements. It is perhaps only because of the existence of the linear frontiers that we do not hear of attempts of mass-migrations into Roman

space; that, and the question of what they would do to avoid expulsion by the Romans once they had penetrated the empire.

The tendency of tribes beyond the frontier to such instability and movement suggests an obvious purpose for the continuous frontiers of the northwest Roman empire. If there were rarely, if ever, concerted attempts at invasion, it is probable that the warriors of such societies, 'their livelihood based entirely upon obtaining spoils' (Cunliffe 1988, 176) represent the threat which the continuous barriers were intended to counteract. At their most elaborate, as they were in Britain, frontier Walls were more formidable than necessary for the diversion of movements of peaceful tribesmen and herds of animals. The general provision of the barriers, even in areas of low population and poor, intractable land, suggests that their primary purpose was directed against raids and infiltration.

6.3.1.4 An intensification of border surveillance

The localised and partial origins of continuous barriers would suggest that far from being intended as defensible lines they began as an *ad hoc* augmentation of the border surveillance systems formed by watchtowers, intended to assist in the deterrence, detection and hindrance of unwelcome parties of greater or lesser size attempting to cross the frontier. Like the original watchtower systems, the continuous barriers could have assisted in the direct interception of what may have been formidable armed bands trying to cross the frontier, by slowing the crossing process and by making it less likely that infiltrators could pass between towers without being detected. If the attack was too great to be met directly from watchtowers or fortlets, the barriers would hinder the movement of an enemy while assistance was sought from the auxiliary garrison, which, as we have suggested, would be present close by in larger numbers on those frontier sectors where this large scale type

of raid was expected. Barriers of this type would also increase the effectiveness of the watchtower systems against smaller scale infiltration and illegal immigration, and so always appeared in the 'remote' frontier sectors, but generally only when it had been decided to make a general provision of a barrier such as the palisade along the entire land frontier; later, the *Pfahlgraben* was not as carefully completed in these sectors as elsewhere (eg 4.7.S7 above).

There are patterns of variation in the size and character of the continuous barriers, already referred to. The British Walls are notably more substantial than anything on the Continent. The probability that Hadrian's Wall and the Antonine Wall possessed a patrolled walkway along their tops is also a significant difference from any continental example; their unusual size and this special treatment supports the suggestion that an extraordinarily high level of surveillance was required on the British Walls. In Upper Germany, in the Wetterau, there is a steady escalation in the strength of the continuous barrier, with the original *Zaun* being replaced by a more substantial palisade, and then the *Pfahlgraben* being added. In Raetia, on the other hand, there are places where an original palisade has been replaced by a less substantial *Zaun* before the provision of the Raetian stone wall. This would support the impression gained from the forts and fortlets that much of the Raetian frontier faced comparatively minor threats of infiltration, at least before the later second century.

6.3.2 Gateways through the continuous barriers

Hadrian's Wall, with its well known series of gates at regular intervals (the north gates of milecastles), provides a clear contrast with the upper German and Raetian frontiers, where no regular series of gateways seems to have existed. It is only the regularity of the Hadrian's Wall system which allows our knowledge of its extensive gate distribution: not all

milecastle north gates have been seen in excavation. It is the very lack of regularity on the Continental frontiers which makes it difficult to know how frequently gateways were provided outside the small areas that have been excavated.

If regularity did not determine the positions of openings on the Continental frontiers, what other factors were influential? If these factors can be isolated, it should be possible to see which of the basic possible functions of gateways were in fact the most important. In other words, the varying gate provision on the Continental frontier systems may provide a clue to the function of the more regularly provided gate structures on Hadrian's Wall. The following are the basic functions that might be ascribed to gates:

1. To allow movement by the Roman army, whether for the purpose of offensive movement, patrol, or the interception and pursuit of attackers.

2. To allow routine servicing of the frontier to be carried out.

3. To allow and monitor cross-frontier trade along established routes.

4. To facilitate and monitor civilian movement across the frontier for the purpose of everyday trade and seasonal transhumance.

In some recent studies of Hadrian's Wall the last of these functions, that involving routine civilian movement, has come to be considered very important, explaining the ubiquitous gate complexes formed by the milecastles. So:

'The purpose of the barrier was to control movement, not to prevent it, as the liberal provision of gateways demonstrates. Civilians, whether merchants, local farmers moving their cattle

and sheep or simply local people visiting relatives on the other side of the Wall, would be allowed through the gateways...' (Breeze and Dobson 1987, 40).

'The track along the north [Vallum] berm would not only be used by army patrols, if these were considered necessary, but also by civilians. It seems unlikely that they would be allowed through the forts themselves, especially if they were driving their flocks and herds, but after crossing the Vallum at the fort causeway they would be directed along the track on the north berm to a milecastle where they could pass through the Wall itself' (Breeze and Dobson 1987, 57).

However, the milecastle gates do not form the only category of passage through Hadrian's Wall. A gate structure is known at the Portgate, and another suspected near Carlisle, to carry major Roman roads through the Wall. Other structures of this type may well await discovery elsewhere (it is accepted here that the Knag Burn Gate was most likely a convenient replacement of the north gate of Housesteads fort, for the use of the garrison, as suggested in Crow 1988, 73-4). Although little is known of these road gates, one would imagine that they represented more substantial passages through the Wall than the milecastle gates. This raises a possible alternative interpretation to that offered in the quotations above: that the milecastle gates were reserved for purely military use, while all civilian traffic, whether of traders or local farmers, was only permitted to cross the Wall at certain special points, fewer in number than the milecastle gates. The existence of the Vallum in the first phase of the Wall's history adds obvious support to such an interpretation.

Turning to the Upper German and Raetian frontiers, we observe the same division of openings into two types: those on major routes, and those with a more limited local service function. Although few of the actual openings have been observed, it seems a reasonable assumption that they would have been

provided opposite or in the vicinity of forts, if only to allow for military manoeuvrability (Baatz, cited in Dobson 1986, 29 n.94). A passage in the Saalburg pass was noted above. We have seen (4.7.S10) the suggestion of roads crossing the frontier hard by forts in the Odenwald. This also certainly happened by Gunzenhausen in *Strecke* 13. It may then be that openings by forts were the ones used by civilians as well as the military; the *collegium convenarum* and other evidence of cross-frontier trade at Öhringen comes to mind here.

More commonly observed are openings in various sectors of the Upper German and Raetian frontiers which are not associated with forts, although these do not always seem to have had a continuous history through all phases of the frontier. Such breaks occur in the *Pfahlgraben* by stone towers in *Strecke* 2; these openings are certainly associated with the stone towers and it was suggested above (4.7.S2) that they were intended to provide access through the *Pfahlgraben* to service the palisade, which, at least in places, continued in use uninterrupted. This provides an interesting analogy for the general absence of causeways across the Hadrian's Wall ditch north of milecastles, and suggests that these openings, rather than providing access through the frontier, may have simply been intended to allow routine maintenance of the palisade by the military. In the same way, at various points in *Strecke* 1 the *Pfahl* was interrupted, but not the palisade.

In *Strecke* 7, openings commonly occur in the stone wall provided there. Here there is no parallel continuous barrier to 'contradict' the openings as in the case of *Strecke* 2 or the milecastle north gates; however, the pattern is similar in that interruptions are confined to the stone wall phase (they have not been observed to date in the abandoned *Pfahlgraben* or palisade); they seem specifically connected to the relationship of the stone towers to the stone wall.

Two alternatives present themselves; either the openings reflect an increasingly porous frontier system, crossed by increasing amounts of civilian traffic; or, as seems clearly the case in *Strecke* 2, the construction of installations in stone necessitated the provision of a means of access so that soldiers from the individual watch-towers could move to the outside of the frontier barrier, whether for reasons of surveillance or structural maintenance. The second conclusion seems the more reasonable, and if accepted would cast doubt upon the widespread civilian use of milecastle gates. Rather the placing of milecastles so that their north wall, and therefore north gate, coincided with the Great Wall, was merely a neat way of providing service access through the Wall. Such a neat solution could not be applied in Germany because the fortlets already existed, lying detached from the barriers; therefore the most obvious place to supply the necessary openings was by the stone towers which came either to be incorporated in, or closely passed by, the frontier walls.

Passages through the frontier which continue through all phases, interrupting earlier palisades and later walls (ignoring those related to forts), are much rarer than the suggested service openings. Although only a fraction of those that once actually existed may be known, it is notable that they have a differential distribution (Fig. 23) We see only one in *Strecke* 1 (1/65); none in *Strecken* 2 or 3 (though there are possible openings related to forts and the passes they guard here). Admittedly such openings may well have escaped detection in *Strecken* 4 and 5 where there has been much more agricultural attrition of the frontier. Such permanent passages are not known to have been a feature of the Odenwald or the outer frontier. In *Strecke* 13, a remarkable cluster of frontier passages is known, including places where both palisade and Raetian Wall were interrupted at 13/43 and 13/54. At the latter a paved road led to the frontier. At 13/50 an interruption in the Raetian Wall given inward projections, as if it were no mere service passage. The same is true of

Strecke 14, which offers evidence of a gate inscription with bronze letters, gates through both palisade and Wall (14/4; 14/12, also with a paved road), and several instances of breaks in the palisade, not frequently observed in our survey of the earlier *Strecken* to have been broken for service purposes.

It is remarkable that what we have characterised as the least threatened, and friendliest, of frontiers, should possess such an array of passages near the Altmühl and other approaches to Raetia, and tempting to suggest that here the frontier really was more porous, with an array of special passages for the movements of traders and other civilians maintained. It is similarly remarkable that such openings are apparently absent on those sectors of the frontiers which we have characterised as remote, and where indeed the continuous construction of linear barriers themselves was not always completed. Passages remain at least undetected in the more endangered Wetterau and on the Outer frontier. In other words, the provision of passages is in inverse relation to the intensity of military garrisoning of the *Strecken*; as long, that is, as the suggested distinction between service openings and openings for possible civil use is accepted. It is suggested, then, that movement of civilians or traders across the frontier may have been limited to certain key crossings, perhaps including those by forts, which will of course, especially if they lay on old passes and routes, also have been used by the army. This permeability of the frontier was apparently much more restricted in some areas than others.

The obvious conclusion to be drawn in relation to Hadrian's Wall is that the milecastle gates were for purely military use, perhaps primarily for the servicing of the north face of the Wall and the ditch. These gates did not give passage to paved roads, as did the notable frontier gates of Raetia; they gave directly onto a ditch without causeway. If we suspect sanctioned civilian passage through Hadrian's Wall, it may be preferable to look towards the Portgate and its possible

equivalents, though these no doubt had military uses too. If this conclusion is correct, it characterises Hadrian's Wall as a frontier that would be routinely crossed by civilians in very few places: much less permeable than the Raetian frontier, and perhaps less often routinely crossed than much of the line in Upper Germany.

On the Continent, of course, the detached nature of the forts will have necessitated passages for military use which were not necessary in the case of the forts which formed a part of Hadrian's Wall. In the same way, the sheer proportionally higher number of gates provided on Hadrian's Wall (than on any Continental frontier) perhaps merely reflects the density of fortlet provision: each milecastle, being incorporated into the stone curtain, required a gate through it if its garrison was to have any freedom of movement or ability to maintain the Wall and Ditch. Even if the function of a milecastle was reduced to mere watchtower status, it may still have been deemed desirable to have access through the Wall, as it was at the watchtowers behind the stone wall on the outer German frontier. There is no reason, either, why the same principle may not have been applied on the Antonine Wall, where ditch-causeways opposite fortlets are also unknown and the same problems of surveillance and maintenance will have arisen.

6.3.3 Fortlets

Fortlets to complement the full-sized garrison forts are a common, though by no means universal, feature of British and German frontiers. In general frontier fortlets outside Britain were sited where corridors and topographic features made them necessary, or were added at a late date in some formerly unthreatened sectors. On Hadrian's Wall and the Antonine Wall they appear in more or less regular systems, and as we have seen (6.3.2) have sometimes been interpreted as having functioned primarily as defended gateways through the Walls.

It is unlikely, for the reasons stated in the last section, that the milecastles were intended primarily for the use of civilian traffic, or for the overseeing of civilian traffic. This conclusion would draw support from the differential distribution of fortlets in Germany and Raetia; where gateways, perhaps for civilian traffic, were provided in some numbers in Raetia, there are hardly any fortlets (cf Figs 23 and 24). Where few gateways were provided, as in the remote Taunus, more fortlets existed. The troops in the fortlets were therefore more concerned with attackers and infiltrators than the collection of customs dues.

The most telling aspect of the milecastles and their Antonine Wall equivalents is their basic similarity to many of the fortlets of Upper Germany and Raetia. Several milecastle-sized German fortlets have only one gate, as in the Rötelsee type, where the accommodation is accordingly ranged around three sides of the interior of the fortlet. However, several of the smallest German-Raetian fortlets (as well as larger fortlets and *numerus* forts) possess two gates opposite each other (eg 12/33 Schirenhof); as they are without exception detached from the running frontier, this shows that the provision of passage through a frontier was not necessarily the paramount function of a fortlet with two gates. This point is reinforced by the recent discovery (Frere 1992, 271) that Milefortlet 21 on the Cumbrian coast possessed two gates; the milefortlet, on a precipice overlooking the sea, cannot have functioned primarily as a passage. The conclusion must be that the milecastles and their equivalents on the British walls were consistently provided with two gates in order to allow the garrison passage through the solid frontier barrier, but that also, in possessing two gates and their distinctive barracks facing each other across a road, these familiar fortlets simply belonged to a class of installations widely used away from the linear frontiers and which we have recognised all along the German and Raetian systems. There is no reason to believe that civilians would any more be allowed routine access to these fortlets than

to full-sized military bases; in this case the milecastles of Hadrian's Wall should also simply be considered as places for the accommodation of soldiers.

However, if the milecastles of Hadrian's Wall are simply interpreted as equivalents to continental fortlets, a problem of interpretation arises, for the density of their provision is much greater than on any part of the Upper German or Raetian frontier. One puzzling aspect of milecastle plans has been the varying sizes and types of accommodation inside them. One possible explanation of this suggests itself from the typical German frontier pattern, where fortlets are irregularly interspersed amongst a more regular cordon of watchtowers. It is possible that the main function of many milecastles was limited to the manning of the north gate tower. Against the background of the slighting of the turrets at the end of the second century, this may explain in part why the milecastles were such an enduring institution; they still provided a tower at every Roman mile. Some milecastles on the other hand, may always have retained their role as a garrisoned fortlet. These latter we might expect to be dispersed irregularly through the system, where required. It is notable that milecastle 48, with its fortlet type accommodation, controls the Poltross Burn, as so many of the German fortlets are situated in relation to rivers, streams or passes. Those milecastles with limited internal accommodation may simply have been used as safe enclosures to house a small group of soldiers manning a tower or maintenance gate, and controlling an access point to the top of the Wall.

The purpose of fortlets was to accommodate a smaller body of men than that which normally constituted a whole auxiliary unit or *numerus*. They thus represent an element of the process discussed above (6.1) whereby fighting units become broken down in order that policing duties may be carried out; a distinction has grown between the traditional military function and the roles of policing, supervision, frontier control and

administration. Their distribution along linear frontiers would suggest that these fortlets provided the accommodation for the troops responsible for day-to-day patrol of the linear frontier and manning (perhaps in further subdivided detachments) of watchtowers, and special supervision of endangered or infiltration-prone parts of the line.

It has been suggested in the past (Birley 1932, 210-14) that a separate force from the auxiliary fort garrisons, akin to the *numeri* of Germany and Raetia, manned the milecastles of Hadrian's Wall. Birley was explicitly influenced (1932, 12) in his conclusion by the existence of the German *numeri*; he was also persuaded by the apparently absurd juxtaposition of some forts and milecastles (in the case of Milecastle 31: 'It is difficult to believe that a detachment of fifty men would be sent out once a month...for a tour of duty only a hundred yards from the regimental headquarters') and the damage that such detachments would make to the fighting capability of auxiliary units (on this see further: Maxfield, 1990, 23-4). On the last point, the potential for large scale and complex detaching of troops from an auxiliary regiment, long before the age when these units had settled to stationary frontier duties, has been vividly illustrated by a recently discovered strength report from Vindolanda (Bowman and Thomas 1991). The juxtaposition of forts and milecastles was, of course, brought about by the addition of the forts in a second scheme, as Birley knew. This does not in itself explain the continuation of occupation in so close an outpost as milecastle 31 is from Carrawburgh; perhaps the milecastle was retained as a useful passage through the Wall which avoided use of the fort's north gate, rather like the Knag Burn gate at Housesteads. If we think of the milecastle as merely housing a small detachment manning a watchtower and servicing the curtain and Ditch in the vicinity, much of Birley's objection is removed.

On top of this there is no evidence for a separate milecastle garrison, of *numeri* or anything else. The separate force of

numeri in Germany, of course, occupied small forts, not fortlets: as we have suggested, they were merely a variation on the standard auxiliary unit, and were employed in appropriately 'remote' or lightly threatened landscapes. They themselves presumably sent out detachments to man fortlets and watchtowers. It is notable that those irregular units that are attested on Hadrian's Wall (probably mostly of the third century) mostly occur in the central sector and outposts, and, of course, at forts, not milecastles. If we confine ourselves rigorously to the nearest morphological relatives of the milecastles, the fortlets of Upper Germany and Raetia (which occur in conjunction with both auxiliary forts and *numerus* forts) there is no evidence to suggest that they were not manned from the forts, whether auxiliary or *numerus*; as with the milecastles, their barrack accommodation, where known, suggests a subdivision of a larger unit, and apart from the forts themselves there is nowhere for such units to have had their home base and administrative centre. On the contrary, it is probable that some auxiliary units based in forts were used to sending detachments to other frontier installations, for example the detachments of *cohors I Breucorum*, from Pfünz, serving at Böhming; and the possible use of detachments from Öhringen at the small fort of Westernbach. There remains the problem of the class of larger (*c*0.40ha) fortlets noted on parts of the Upper German frontier, some with their own bath-houses; although the nature of their garrisons remains obscure, unlike the milecastle-sized fortlets they are confined to certain parts of the frontiers, and most have a clear relationship to a nearby auxiliary fort. These large fortlets were a late development and it is suggested below (6.4.6) that they simply represent a need to concentrate larger bodies of troops on the actual frontier line in response to growing localised pressures. In this case the large fortlets may just as well have been garrisoned by a detachment from the auxiliary unit as by any separate force, for which we would have no equivalent sized accommodation at a date earlier than the mid-second century. In short, the use of the German *numeri* to

postulate a separate force on the British frontier is fraught with difficulty. In Britain there was no type of fort to provide headquarters bases for such a separate force. Finally, there is some material evidence from Britain to suggest that the garrison of a milecastle was drawn from the same background as the soldiers of its nearest auxiliary fort: L Allason-Jones (1988, 217) has suggested, on the basis of motifs on small finds, that the garrisons of Turret 35A, Milecastle 36 and Housesteads fort may have shared a devotion to Taranis, the Celtic wheel god. The same milecastle has produced a lead sealing of *cohors I Tungrorum*, the garrison of Housesteads (RIB 2411.146).

In short, there is no reason to believe that fortlets were not meant to represent anything other than that which they immediately appear to be: small versions of Roman auxiliary forts, designed to accommodate detachments from whole auxiliary units, and meant to operate as a base, defensible in emergency or against surprise attack (note the formidable defences of Neuwirthaus fortlet in *Strecke* 5, which was isolated by marshes from nearby sources of reinforcement), from which the manning of watchtowers and other duties of frontier patrol and maintenance could be carried out. There is no reason to believe that civilians would any more be allowed routine access to these fortlets than to full-sized military bases; in this case the milecastles of Hadrian's Wall should also simply be considered as places for the accommodation of soldiers. Only further excavation will reveal how many contained sizeable detachments (in the manner of German fortlets), and how many simply housed men looking after the north gate and tower.

6.3.4 Watchtowers

There is no reason to see any fundamental change in the border-surveillance role, suggested for watchtowers in section 3.2.4, during the second century. It is notable, however, that

a closer spacing of towers on the new outer frontier, and on certain reconstituted sections of the Upper German frontier, suggests that increasing pressures of some kind were necessitating a more intensive provision of towers. There are other interesting regional variations in the watchtower pattern which provide insights into the functions of the different frontier sectors: in Raetia, for example, a larger watchtower type (*'Blockhaus'*) was always commoner, and associated with a general absence of fortlets; here it was not felt necessary even to concentrate the patrolling garrison in fortlets. On the contrary, in *Strecke* 13 the troops manning the towers were sent over a considerable distance directly from the rearward auxiliary forts, there the only other form of installation capable of housing troops. In *Strecke* 14 the towers were presumably manned from the intermediate sized forts near the frontier line, themselves most probably manned by detachments from the rearward auxiliary sites. Even here some of the large towers lay a considerable distance from any kind of fort. On this 'friendly' frontier very small detachments of frontier police could safely operate for long periods away from larger troop concentrations. Because they had to be self-sufficient and without recourse to assistance for so long, they were evidently provided with a larger accommodation, and perhaps organised into somewhat larger groups, than the garrisons of the standard Upper German towers. The latter, although on a more dangerous frontier, could be smaller because they were part of an integrated system of forts and fortlets.

In Britain the situation is different again. No evidence has yet emerged for a watchtower system on the Antonine Wall. On Hadrian's Wall, apparently in clear contrast to the continental situation, a number of turrets, especially in the central sector, seem to have gone out of use by, or around, the end of the second century. The general explanation advanced for this is that the turrets became superfluous once the garrison forts were added to the wall scheme, or that there had always been an overprovision of turrets (Breeze and Dobson 1987, 132-3).

Parts of the earliest Upper German frontier began as watchtower systems without much in the way of supporting fortlets, and a complete absence of auxiliary forts. When sections of the Upper German frontier were advanced or newly constituted in the mid-second century, there was a renewed emphasis on the role of watchtowers, for their spacing was narrowed to a considerable degree. The impression is inescapable, that as provision of watchtowers grew steadily more essential on the Continental frontier, the equivalents on Hadrian's Wall had become less important. Only one factor satisfactorily explains this: the probability that Hadrian's Wall (and the - as far as we know - turretless Antonine Wall) carried patrolled wall-walks which rendered the provision of individual elevated platforms to look over the barriers redundant. Having been built in the first, ideal, Hadrianic scheme, the turrets may well have been found useful in a practical way as accommodation or a means of access to the wall top: once, after a generation, their timbers began to rot, and after the experience of the Antonine Wall, which had perhaps done without such structures, it may have been concluded that the towers and wall-access points provided at the milecastles and a limited number of turrets were sufficient. This does not prove the existence of a wall-walk: but by reducing the number of towers on parts of the Wall to those provided by the milecastle gates, the Romans were adjusting the watchtower frequency to a level much more sparse than that on the German frontier. It is difficult to see how a surveillance of the Wall-line as effective as that in Germany could be achieved without a wall-walk.

The recent discovery (Crow 1991, 53) of an additional tower complementing the turret system at Peel Gap on Hadrian's Wall, between turrets 39a and 39b, serves to illustrate that the turrets were not wholly an overprovision or an institution rendered unnecessary by the addition of the forts. As with the turrets in use in the Hadrianic period, there was evidently a time when extra surveillance from a tower was considered necessary here. Peel Gap tower probably surveyed an approach

to a potential crossing point of the Wall otherwise sheltered from observation by precipitous crags; its placement right in the gap underlines its potential for direct intervention to obstruct unwelcome movement, and discoveries of sling-shots and a ballista bolt, as in the case of the well-known throwing stones attested at German towers, indicate that this intervention could be of a military nature, directed therefore at infitrators as much as delinquent farmers. The closer spacing of towers than before on the German mid-Antonine outer frontier, and on various other later re-alignments in Germany, points to the same conclusion. In the British case, however, Peel Gap tower was out of use by the end of the second century. A probable stair platform built along the side of the redundant tower, however, underlines the importance of access to the Wall-top, and reinforces the conclusion that the unique demise of watchtowers in Britain was associated with the uniquely patrollable tops of that province's frontier barriers.

6.3.5 Forts

The survey illustrates clearly that type, size and density of auxiliary forts varied, in common with the linear frontier installations, according to the degree of population and nature of the threat posed on various frontier sectors in Upper Germany and Raetia. For Britain this raises a similar problem to that discussed in relation to fortlets: was the initial regularity (and relative closeness) of fort-spacing on Hadrian's Wall an unnecessary and over-systematic plan, or does it reflect perceived difficulties on the frontier in Britain? As in the case of the milecastles, the enduring nature of the forts of Hadrian's Wall as institutions perhaps suggests that a relatively large garrison on this linear frontier was considered necessary for practical reasons. It must remain uncertain for the time being whether those reasons lay in a formidable armed resistance, or in a Roman belief that large population in a largely cleared landscape had to be matched by

a large garrison. The most similar spacings to be observed in Germany occur on the most endangered section - the Wetterau. On the mid-Antonine outer frontier, a closer spacing than before of watchtowers leads to the impression that the new system had been constructed in the face of growing pressures from infiltrators or attackers.

For whatever reason, the Antonine Wall came to feature concentrations of troops in forts of greater or lesser size at the expense of a watchtower/fortlet surveillance and patrol system. Here it may be suggested that attempts to cross, or resistance to, the frontier were so dogged or formidable that detachments of smaller size than those finally used were not found to be effective or safe. The large fortlets of the Wetterau, closely associated with full auxiliary forts, and given a degree of independence with their own bath-house, recall the secondary Antonine Wall forts, and it is notable that the large Wetterau fortlets seem to have developed as an augmentation of the frontier during the course of second century, when it appears that pressure was mounting in this area.

6.3.6 Communications

It is often assumed that a road is one of the essential elements of a Roman linear frontier. However, the variety of types of road system points to the conclusion that the foremost role of the frontier systems was not to protect roads. The Military Way that was added to Hadrian's Wall, connecting its forts and milecastles, was not an arterial east-west route. It must have allowed for transport of supplies, movement of troops between sites and official tours or inspections of the frontier forts, but any direct traffic between east and west continued to use the Stanegate, to the south. The Military Way runs along the line of the Wall because this must have seemed an

obvious itinerary given that certain visits and deliveries would have to be made to all the forts.

On the Antonine Wall the Military Way alone sufficed; there were no towns such as Corbridge or Carlisle near the northern Wall between which direct traffic would pass. Most traffic in the area probably had business with the frontier forts. The traveller was not forced to pass through every fort on his journey, as the by-pass loop at at least one fort illustrates.

In Raetia the major road that connected the Danube and Upper Germany was never really incorporated into the linear frontier system. Indeed here the units in the forts never seem to have become as concerned with the frontier to the north as with the road. The forts tended to stay on the road, with detachments sent out to man the frontier from smaller sites. It is clear in this case that the watchtowers and walls were not specifically associated with the protection of traffic, but rather with general infiltration. The same was true of Hadrian's Wall and the Antonine Wall, but in Britain the compact nature of the isthmus utilised by each determined that Hadrian's Wall should not be built far from the separate arterial road represented by the Stanegate, and that the forts on both walls be connected by a road.

In the Taunus-Wetterau area of Upper Germany, the pattern is different again. Here the frontier did not follow an obvious route like the Tyne-Solway Isthmus, nor did it grow up beyond a lateral road such as the Stanegate or the Raetian road. The frontier was, rather, built on the fringes of an area into which a penetration road ran. The frontier line itself was sinuous and as a line served no communications purpose, except for a traveller wishing to visit a succession of frontier sites. Accordingly, only minor roads and tracks run along the frontier line, and the major roads known in the area branch out from a central point in the Wetterau, each going individually to a frontier fort.

Given the existence of a linear arrangement of forts (eg Hadrian's Wall, the Odenwald), there would tend to be traffic along the frontier, simply for the routine business of supply and communication. But where that linear arrangement was not compact (eg the Taunus-Wetterau), major traffic reached the forts by more direct means than that supplied by the frontier line. Where rearward lateral roads existed (eg the Stanegate, Raetia), their function seems unconnected with the artificial frontier.

6.4 Second century frontier systems: coherent development, or inertia and oscillation?

6.4.1 A rational limit to expansion in Upper Germany and Raetia

The second century development of the linear frontier systems of Upper Germany and Raetia presents a picture of consistent progress in one direction. Different areas progressed towards their definitive frontier lines at different rates, but ultimately progressed as part of a general scheme. That this may not have been planned from the outset should not be taken to mean that the pragmatic completion of the frontier systems was an irrational or thoughtless process. For much of its line the Upper German frontier that was held until *c*260 was established as early as the first century. It was argued above (3.3) that the establishment of such early lines represented a conscious decision, whether military or political. The practicality of the decision in Germany was borne out by the longevity of the early line. In broad terms the second century sees the finalisation of the Raetian line and the corresponding forward adjustment of parts of the Upper German frontier; much of this can be seen as a gradual adjustment so that the frontier system worked better as a rational whole. If the *Vorverlegung* involved the abandonment of the old Odenwald cordon, this simply, and exceptionally, happened because a

formal frontier had never been formed on the Neckar or in the far west of Raetia. The move forward from the old Odenwald line took place as part of the rational process of completion of the whole preclusive system.

This is in contrast to various views of frontier movements as being irrational, oscillating or unco-ordinated. There is Mann's classic argument (1974, 519-20):

'The upper German frontier was pushed eastwards, the Raetian frontier northwards, without the slightest evidence of any co-ordination between the two. In their final stages there was still a great re-entrant angle between them...The Wetterau and lower Main, once occupied, seem to have remained under Roman control more through inertia than as the result of any coherent or objective planning...'

This view is contradicted by the dating evidence (4.4-5), which strongly suggests that the completions of the Upper German and Raetian lines occurred simultaneously, an indication that the move was indeed a co-ordinated one.

The famous re-entrant between Upper Germany and Raetia has exercised Mann and other scholars. To have attempted to close the re-entrant, however, would perhaps have signalled an involvement in Germany beyond the great rivers. This would have been associated with the policy of advance into free Germany that had been a dead letter since the time of Domitian. Of course, the drawing of a straight line between Danube and Main ought to have been within the grasp of the army, and would have produced a shorter line, but this is to assume that the Romans thought in these terms at all. Rather their concern was with the effective holding of territory. The manpower available from the time of Domitian decreed that the Rhine and Danube should be the general limits of Roman administration. Topography and the needs of communication between provinces necessitated the occupation of certain key areas beyond the

rivers which it would simply have been dangerous to leave outside Roman control: the Wetterau and the Nördlinger Ries. As Schönberger (1985, 398) has observed, these areas were vulnerable in similar ways and both enclosed at an early stage by Roman frontier control. These areas dictated the line that the frontier would always take. At first, they were separated by porous communications systems, these, and the fertile lands through which they ran, eventually being enclosed by the preclusive mid-Antonine outer frontier. Schönberger (1985, 399) can see no reason why the Romans should wish, in a frontier-straightening exercise, to include the area north and east, as far as the upper Altmühl. In his view, the frontier line actually represents a deep awareness of the difficulties of the terrain (transected by deep river valleys) which was therefore always left outside. None of this is to say that there were not fertile areas outside the Roman frontier; the Giessen basin, north of the Wetterau, is an example. The point is that the Romans controlled those areas immediately beyond the rivers that they needed to control, and evolved a rational frontier system linking them. To have gone any further, even into attractive areas, would have been to push irrational salients into free Germany, and it was known that there were never likely to be the initiatives or manpower to make such advances rational by incorporating them into a general scheme of advance.

Leaving aside the general failure to conquer the Germans, the frontier was rational and successful in terms of safeguarding that territory which could be effectively administered by Rome (until the onslaught of the mid-third century, of a kind against which the frontier had not been designed). The linear systems did not move backwards and forwards according to imperial whim; there was one careful and co-ordinated advance in the mid-Antonine period, more of a completion of existing frontier arrangements than an aggressive advance, and seemingly carried out not as an act of blatant imperial conquest, but rather as a precautionary measure against growing instability

in the frontier zone and attacks on the province. In this interpretation, German and Raetian frontiers can be seen to have reached the furthest rational limit of Roman expansion. Essentially the settlement areas focused on the Rhine and Danube and the most fertile parts of their major tributaries were effectively occupied by Rome: the occupation of these spheres, and construction of their protecting frontier systems, was rationally completed. The Roman army had got as far as it could reasonably wish to go without embarking on an invasion of greater Germany.

6.4.2 A rational limit of expansion in Britain, and the Roman failure to reach it permanently

As in the first century, so in the second, it is possible to suggest that the same advance to a rational limit would have occurred in Britain, had policy in Britain not been frustrated by certain peculiar circumstances. Hadrian, it is true, had attempted to establish the frontier, on a seemingly permanent basis, on the Tyne-Solway isthmus. As a policy, however, Hadrian's decision may be seen as an aberration in contrast to what came before and later. It was argued above (3.3) that the return to the Forth-Clyde under Pius might be interpreted as a return to a long running policy of attempting to occupy a natural Roman constituency running as far as the edge of the Highlands, as defined by the old Gask line, and also indicated by the outpost fort line north of the Antonine Wall. As it happened, Pius' initiative was eventually frustrated, and the Antonine Wall abandoned after a short occupation. Maintaining a Roman military occupation up to the Antonine Wall and the Highland line would have been the equivalent of the rational solution, the furthest desired extent (short of limitless conquest), which was achieved beyond Rhine and Danube. As it was, the Roman frontier in Britain from the mid-Antonine period on had to be drawn through an homogeneous area which might otherwise have been wholly incorporated into the empire, and there was a continued military and diplomatic interest in areas

far north of the actual linear frontier as represented by Hadrian's Wall.

To ask why the rational solution of the problem of Roman Scotland was never achieved is to ask the simple question: why did the Romans fail to conquer Scotland? This question has tended recently to be answered in two basic (and rather contradictory) ways. The first way of answering the question places great emphasis on lack of imperial will at crucial moments to pursue the Scottish conquest to completion. In summary, this view maintains that if the Romans had pursued a consistently determined policy of expansion in Scotland, nothing could have prevented their conquest of the whole island of Britain (Breeze 1988).

In this approach some old and more recent suggestions are dismissed by process of elimination. Were the highlanders too warlike to be conquered? There is no direct evidence for a particularly fierce or effective waging of war on their part (Breeze 1988, 8). Were the Highlands themselves too daunting a prospect to conquer? 'It is difficult to avoid the conclusion that the Roman army, which was not beaten by any other terrain, could have dealt with the Scottish Highlands if it had wished' (Breeze 1988, 11). Did Scotland offer too little economic return to justify conquest? Breeze concedes that Scotland probably offered little economic encouragement to the Romans, but goes on to make the important point that economic motives seem to have played little direct part in the decision to wage an ancient war of conquest. However, total conquest ought, as in the case of Wales, to have allowed reduction of the occupying army, this itself an economic return of sorts.

Breeze then considers the theory of Groenman-van Waateringe (1980; 6.4.4 below) that native society beyond a certain point in Britain - and other frontier zones - was insufficiently urbanised or centralised to support an imposed Roman administrative structure and provide a food supply for the

Roman army. Breeze is led by a lack of evidence for social and economic difference between peoples in northern Britain within the province, and the inhabitants of lowland Scotland, to discount the Groenman van Waateringe theory, or at least to relegate it, with the other factors described above, to a contributory background against which the real reason for the failure to conquer Scotland must be set.

That fundamental explanation is seen as a lack of imperial will to continue conquest to completion at vital moments, combined with a recurrent need to withdraw troops from a peripheral province to meet emergencies on the Continent. Neither element of the explanation sees local circumstances in north Britain as being decisive in frustrating total conquest. We have already encountered one of the famous examples of the 'imperial whim' factor, in the apparent halt in Agricola's advance in the years 80-81, which coincides with the reign of Titus. There was certainly a change of policy here, but this need not have been the only factor in deciding the ease with which the Romans would move further north; when Domitian overruled the halt of Titus' reign he may have been overruling a pessimistic assessment by Agricola and the army on the ground about the ease with which the remainder of the island could be conquered. The army on the ground may have been consistently aware of the difficulties of the situation and the fragile nature of conquest should troops be withdrawn. This local perception may have remained valid whatever the orders of individual emperors to hold or advance.

For second century Britain, explanations stressing external and political factors have drawn support from the accepted history of the two frontier Walls. The limited nature of the Antonine invasion of Scotland, and its rapid abandonment, usually thought to have occurred soon after Pius' death, has led to it being interpreted as a mere political move to boost the military prestige of the emperor (Breeze, 1988, 18). But rather than representing an unusually limited advance into

Scotland, the Antonine advance - if we measure a permanent occupation by the distribution of permanent installations - encompassed the same area, to the edge of the Highland line, that the Flavian Gask frontier and the known permanent installations of the Severan age covered. So consistent was the aim of Roman involvement in Scotland.

Detailed interpretations of the perceived two phases on the northern Wall, Antonine I and Antonine II, have evolved. The nature of these two phases is commonly taken to indicate that events in Scotland itself did not cause the oscillations in frontier policy. The perceived proportionally heavy garrison of the Antonine Wall in Antonine I has lent support to the theory that the building of the Wall was a political exercise to boost the emperor's military prestige (A Birley 1974, 17-18; Breeze 1982, 98-99; Hanson and Maxwell 1983, 60-61, admitting other factors), and a venture which was therefore intended to run no risk of failing: 'Controlling the tribes of the Scottish Lowlands [in Antonine II] may have required fewer units than in the first Antonine period, maybe because the earlier occupation had been in massive strength to ensure Pius his easy victory' (Breeze and Dobson 1987, 125).

The return to the Pennines by *c*158 has been linked with threats of internal unrest (the 'Brigantian revolt' and with crises on the Continent. The possibility of local pressure on the occupation playing a decisive part is strenuously denied, and the absence of archaeological evidence for disaster emphasised: 'The withdrawal from Scotland in the late 150s cannot then have been the result of hostile tribes from the north sweeping the Romans before them' (Hanson and Maxwell 1983, 145).

The perceived return in lesser numbers to Scotland in Antonine II has been taken to signify that opposition from the north was no more of a threat than that had arisen in the hinterland. The implication drawn is that the subjugation of Scotland was not an onerous task for the Roman army, and that too many

troops had been dispatched to the north with Lollius Urbicus, with the result that unrest among the Brigantes in the Pennines was encouraged.

'The close density of military stations found in the earlier Antonine occupation [of Scotland] was abandoned, and the normal spacing between forts returned to a day's march. If the advance into Scotland in the early 140s had been in response to hostile moves north of the frontier it might be expected that the re-organisation reflects increasing Roman confidence in controlling the Lowland tribes. If, on the other hand, the move north was in order to help smooth the succession of Antoninus Pius then the change...might reflect the fact that the heat was now off the local situation in Britain and matters could be allowed to return to normal' (Breeze 1982, 121).

'The second Antonine occupation of Scotland is marked by a considerable reduction in the overall garrison... This... hardly lends support to the suggestion that the return to Scotland was in answer to a northern threat, nor that the original evacuation had been prompted by any serious native pressure' (Hanson and Maxwell 1983, 148-50).

'The impression is that the Roman army moved north in great strength. The fact that some of these sites...were abandoned within a few years [in Antonine II] suggests that the army may have overestimated the problem in the 140s and placed a greater occupation force in the Scottish Lowlands than was really necessary' (Breeze and Dobson 1987, 109).

In the same vein the final abandonment of the Antonine Wall is seen as an unlucky accident; the army, facing no insurmountable threat locally, had matters removed from its hands, and invasions across the Danube early in Marcus' reign led to troop withdrawals and the second abandonment of Scotland in a decade. The only archaeological evidence of destruction on the Antonine

sites in Scotland may be interpreted as orderly Roman withdrawal, and so:

'It is difficult...to believe that the final abandonment of the Antonine Wall was in any way connected with hostility in Scotland' (Hanson and Maxwell 1983, 151).

There are several characteristics of Roman frontier policy thus deduced from the accepted sequence of occupation on the British Walls. The emperor's military reputation in Rome is rated a highly influential outside factor, which might in itself alter the organisation of frontier systems out of all recognition. Chance factors such as the withdrawal of troops from the low-priority province intervened. The army on the ground is characterised as being supremely confident and in control, except in areas where conquest had not been followed by sufficient consolidation, leading to internal unrest. The whereabouts of a particular frontier line becomes almost a matter of chance, of academic interest; they are products not of a defensive - or administrative - rationale, but of situations bequeathed by the latest inertia or enthusiasm for frontier warfare shown by the emperor.

6.4.3 The reason for the failure to conquer north Britain

It was concluded above (5.5.2), however, that there is no real evidence for a break in the occupation of the Antonine Wall. All that can be shown to have taken place are various modifications and changes of garrison, not all necessarily at the same time, at some of the sites. Antonine II, where it existed, represented a system of outposts north of the restored Wall of Hadrian. If this is accepted, it must cast doubt on some of the interpretations cited in 6.4.2. Instead of the Roman army apparently coming and going in north Britain as it pleases, we are left with a picture of a short, single occupation of Scotland with thinly spread garrisons and a

proportionally very heavy garrison on the frontier line itself. By the mid-Antonine period most of the army had returned to the Pennines and Hadrian's Wall. An obvious conclusion might suggest itself to a layman: resistance to the Antonine invasion of Scotland was formidable, and this, combined with events on the continent, made the Antonine Wall untenable. The standard theoretical reply at present might be that, however awkward the occupation of Scotland, it was the probable withdrawal of troops from Britain in the 160s which tipped the balance against the continued holding of the Antonine Wall. If this was the case, however, it may be fair to ask exactly why, if it was possible to hold Scotland with appreciably fewer troops than were actually used - and this is, in effect, what the equation of a large garrison with a political exercise which must not be allowed to fail implies - this was not done. Marcus would surely have retained Pius' conquests if this could have been done with a significantly smaller garrison. It could not be. The persistent Marcan interest in the same area of Scotland had to be pursued through an outpost system. The withdrawal of troops from Britain thus merely highlights the necessity of a proportionally large garrison for the holding of Antonine Scotland, for what must have been local reasons.

Naturally the number of troops available in Britain was a factor in part determined by outside events. However, Roman frontier policy in Britain in the second century may actually be seen as a fairly consistent response to local circumstances. Hadrian's reign, with its limited interest in lands beyond the Tyne-Solway, if anything represents the only exception - admittedly a clear example of a frontier transformed, or created, by an outside policy. Pius' advance (although it can hardly have harmed his military reputation) saw a return to a policy of control running as far as the edge of the Highlands; over the natural Roman constituency. Such were the military problems of the occupation, however, that it could only be achieved at the expense of a formidable garrison, whose enforced reduction in the 150s or 160s led to the abandonment

of the Antonine Wall. Some would suggest that the abandonment of Antonine Scotland was caused by nothing more or less than the death of Pius himself. However, the possibility was noted above (5.5.4-5) that the abandonment may have begun as early as *c*158 (others would opt for the later 160s). Furthermore a military involvement with lowland Scotland persisted until late in the century; Pius' adventure had not taken him into lands with no interest for his successors. The possibility of outright occupation was perhaps beyond them, without a considerably larger provincial army, and ultimately the formidable nature of the opposition to the Romans amongst certain peoples in northern Britain must play an important part in explaining why. The density of the military network in Lowland Scotland, and the proportional concentration of troops on the Antonine Wall itself, mark the northern frontier out as dangerous in comparison to Raetia and almost every part of Upper Germany.

This interpretation of the Antonine advance into Scotland is unfashionable: it is not customary to see local conditions, let alone natives, hampering the Romans for long. This unusual perspective is suggested here because it explains the contrast between events and dispositions in Scotland and on the Continent, and because much of the reason for believing in supreme military confidence on the ground may be seen to be based on a mistaken two-period reading of the structural history of the Antonine Wall.

Rather than Imperial whim and power-politics, then, the failure to conquer Scotland can be seen as a problem of special military difficulty in a peripheral area set against a background of more directly threatening emergencies diverting troops to the Continent.

Septimius Severus' campaigns have been cited (Breeze 1988, 18-21) as another great example of imperial whim working against the (attainable, given determination) complete conquest

of Britain; it might have happened, had not Severus suddenly died and his son given up his conquests. Dio, who was in a position to know, and had no interest in disguising the truth (Isaac 1990, 389-90), records that Severus' aim was to conquer the rest of Britain (76.13.1). Rather than being broken off by Severus' death, the campaigns may have been brought to a conclusion by Caracalla (Frere 1987, 162). Severus probably did set out with the aim of complete conquest in mind. As has been suggested (3.3 above) however, although there might be wars of conquest beyond frontiers, unless large numbers of troops were made available to garrison newly conquered areas, the limit of practical occupation would remain where it had been before. As the Continental frontiers show, such zones of practical occupation tended to remain the same, despite the grandiose statements of intent and efforts of individual emperors to move beyond them. In other words, conquest could not always be followed by consolidation on the Roman frontiers. Florus' remark (2.30) about Varus' Germany being defeated rather than subdued - *Germani victi magis quam domiti erant* - comes to mind. Severus' initiative went the same way as its two predecessors, those of Domitian and Pius, and as in each of those cases, although outside factors intervened, practical difficulties on the ground may have been just as decisive. Perhaps Caracalla in Scotland simply perceived the practicalities of occupation more realistically than his father had done, and fell back on the tried policy of outposts and coastal control to conduct relations with the defeated Caledonians. As in Britain, so elsewhere: campaigns by individual emperors did not lead to formal linear frontier systems being moved wholesale. The Antonine Wall forms a great exception, and that simply because it overturned Hadrian's exceptional policy of having no military interest in Scotland, and was held as a linear system for 15-25 years before the normal situation of remoter control of Scotland re-asserted itself. The *Vorverlegung* in Germany marked the completion of an existing (and, in Raetia, still developing) system, and not a frontier pushed forward after a great conquest.

Thus Britain, as Germany, had its rational limit of expansion, and it was a fairly consistent policy of second century emperors (Hadrian being the exception) to reach it, by whatever means possible given the size of the army available in Britain and the demands of events elsewhere. The single post-Flavian attempt at permanent occupation, under Pius, was short-lived. Although demands on the province from more urgent theatres of war were important, the sheer size of the British garrison in proportion to the armies of the Continental frontier provinces, and the formidable nature of the British linear frontier systems, strongly suggest that conditions in north Britain prevented a smooth advance to the 'natural' limit achieved in much of Germany and Raetia.

6.4.4 An economic explanation for the location of the frontiers in northwest Europe?

This emphasis on the long-term practicalities of occupation and portrayal of frontier policy as consistent and rational in local terms rather than externally inspired or whim-driven leads us back to the Groenman-van Waateringe theory and the question of why exactly the rational limits of expansion fell where they did, and why the Roman state did or did not achieve these limits. The two approaches to Roman frontier history, that exemplified by Breeze, and that of Groenman-van Waateringe, are direct opposites: one emphasises chance, and the conscious roles of named individuals, while the other sees events determined by social and economic structures. If we reject the former, must we revert to the latter, and accept the Groenman-van Waateringe theory?

In proposing that only societies having achieved a given level of economic development and political centralisation could be absorbed into the Roman state, the Groenman-van Waateringe theory is economically and historically deterministic. It sees social and economic structures as the vital elements in

deciding the relations between the Roman state and indigenous peoples. The theory does not consider the possible importance of the conscious wills of individuals in forming relations with Rome: the possibility that chance, differing ideologies, or peculiar local conditions may have produced varying degrees of accommodation of the Roman state structure among frontier peoples of apparently similar levels of social and economic sophistication.

The active role of individuals forming societies neglected in the Groenman-van Waateringe model may have manifested itself in parts of north Britain as the resistance to the Roman occupation suggested above (3.3; 6.2.3 etc.) as being more formidable than in much of the Germanies and Raetia. While Groenman-van Waateringe is no doubt correct in supposing that the relatively limited degree of centralisation amongst such societies made the process of Romanisation more difficult than in the South, it may also be possible that for more or less complex reasons, such as population density, the occurrence of complexly interspersed agricultural and upland zones, or a geographical remoteness from the continental empire, people behaved differently towards the Romans in different areas, and that north Britain saw an especially fierce resistance to the Roman occupation. This is not to say that such peoples were unconquerable, but merely to emphasise factors of local interaction and resistance more strongly than in the Breeze model, where the fate of a conquest is decided primarily by the Roman attitude towards it, or in the Groenman-van Waateringe model, where attitudes are subordinated to the dictates of economic structure. In reality each of these factors probably had a role, but in recent interpretations the active attitudes of native peoples have not been seen to be as potentially important as the last two.

Thus it does seem that variations in the attitudes of native peoples could be infinitely complex, and that rather than advancing as far as some neat line of transition between

Romanisable and unromanisable populations, the northwest European frontier simply absorbed into a rational system those populated territories and communications corridors which could be administrated without embarking on a massive conquest of more of free Germany. This is what explains the detailed location of the frontier installations. Of course, all this was against a background of a geographical transition from societies which were broadly governable by Rome to peoples who would only ever have been absorbed with difficulty, whatever the resources available: the continental frontier was 'roughly coincident with the southern boundary of the coniferous zone of northern Europe' (Cunliffe 1988, 7). The Groenman-van Waateringe theory may therefore be valid in explaining some of the factors which impeded and eventually halted Roman imperial expansion in this area, but is of limited use in explaining the detailed location of the frontier lines themselves.

Breeze has made a similar criticism of the theory as applied to Britain: he notes that 'The frontier lay well beyond the territories of the more advanced tribes discussed by Professor Groenman, with no clear distinction being identifiable between the nature of the tribes immediately within the province and those immediately beyond' (1988, 14). One could argue that Groenman-van Waateringe is correct in that the Romans could only advance as far beyond the lowland-highland transition as they had troops to garrison the area beyond. It seems unlikely, however, that the permanent garrison of the Pennines was mainly concerned with policing the Brigantes. Wales, with no frontier, did not maintain a large garrison. The Pennine forts were surely a reserve directed at the north. In this case, as with the Welsh units, in theory these units could have been displaced into Scotland, as was actually tried under Pius. But it always proved difficult simply to move the available troops forward. The only thing that can explain this - for, after all, the Flavian period had shown that armies could be supplied in Scotland - is a more severe military problem in Scotland than in the Pennines.

6.4.5 An incomplete conquest in Britain compared to a completed frontier in Germany

In Germany and Raetia, there was a much more rational completion of the process of Romanisation; the 'natural' extent of Roman administration was reached. There were few places where the frontier cut across well-populated, homogeneous zones of settlement; rather, as we have suggested, the frontier neatly took in the zones of settlement associated with the Rhine and Danube. This process was rationally completed by the advance from the Neckar to the Outer frontier. In any case, as our study of the varying densities of frontier garrisons has suggested, the tribes in these areas were more prone to Romanisation. We see this in the rapid development of *civitates* immediately behind the frontier line. Some areas of the Upper German frontier were seriously threatened by external raiders - notably, on the evidence of installation density, the Wetterau; other sectors, facing apparently lightly populated areas, or friendly peoples, were relatively less troubled, at least to begin with. The lack of initial serious resistance beyond much of the frontier is signified by its gradual, bloodless advance and in places only gradual transition from a porous to a preclusive line. So two attitudes shaped the Roman frontier: the Roman recognition of the rational limit of advance, and the ready acceptance of the Romans by much of the native population; such attitudes were as important as the impersonal economic structures highlighted in the Groenman-van Waateringe theory in determining the detailed aspect of the frontier. In Britain another rational limit awaited the Romans, but was never permanently attained; the density of military dispositions in comparison to Germany would suggest that this had as much to do with the conscious attitude of native peoples as with either troop withdrawals or economics. Furthermore the failure to complete the task, the failure to enclose as a unity within the frontier a body of Romanisable population, and to isolate it from exterior influences, only exacerbated the problems of military occupation.

It is arguable that the German frontier presents a picture of how northern Britain might have developed if permanently conquered up to the Antonine Wall and the Highland line. Conversely, the frontier problem in Britain shows the kind that might have prevailed in Germany if the frontier had remained on the Rhine and Danube, with the Wetterau and Neuwied basin and Nördlinger Ries left unoccupied. As well as a military problem in north Britain, this may suggest a certain conservatism in Roman thinking there. Had Hadrian settled upon the Forth-Clyde Isthmus for his Wall, it might have endured - even beyond the 160s. As it was, after the 120s, the Romans never seem to have been able to tear themselves away from the concept of the Hadrianic frontier. For all protestations that works in turf and timber need not be impermanent, there was something half-hearted about the finished appearance of the Antonine Wall and its forts. In the mid-Antonine period the Romans seem to have drifted back to Hadrian's Wall without reluctance. The early second century was a time when the permanence of frontier lines was being widely established, and Hadrian's (arguable) mistake in placing his Wall short of the 'natural' extent of Roman occupation seems to have weighed heavily on later generations. On the other hand, there must have been a great difficulty with the military situation, for the settlement of a permanent frontier on the Tyne-Solway to have seemed the wisest course in Hadrian's time.

In Britain from *c*160 until some date in the third century, a mixture of outposts, diplomacy and coastal control beyond Hadrian's Wall had to take the place of occupation up to the Highland line. As a result of the incomplete conquest of north Britain, a great military network had to become a permanent fixture in the north, filling the hinterland of Hadrian's Wall with permanent garrisons. This is direct contrast to the situation in Upper Germany and Raetia, where most of the hinterland was rapidly demilitarised. The hinterland garrisons of north Britain were there because they were needed for strategic intervention beyond the Wall, and for support of the

Wall system, all this only necessary because the conquest of north Britain remained incomplete. That such a network was not solely necessitated by internal unrest among a Pennine population which would not, or could not, Romanise, is suggested by Wales, where the military occupation was drastically thinned out from the Hadrianic period, although the Welsh tribes had initially put up a formidable resistance and always remained for the most part conspicuously unromanised.

6.4.6 Changes in the frontiers and the threats facing them from the mid-second century

In Germany there was a gradual intensification of the preclusive strength of the frontier, indicating that where once liberal and porous systems had sufficed, now more formal delineation of empire had to be introduced. This is seen in the build up of installations and addition of forts during the second century in various sectors, notably *Strecken* 1, 2, 3, and 4; this also occurs in Raetia, as for example in *Strecke* 15. The suggestion was made above (4.7.S4) that fortlets were originally sited where local topographic requirements dictated, while the later fortlets placed without obvious regard to the topography were a response to a growing infiltration problem, and represent a move towards the regular provision of installations against threats from increasingly unpredictable quarters. The addition in the Wetterau of a series of large (0.40ha) fortlets on the actual frontier line, but in close association with rearward auxiliary forts, may also denote a need to concentrate more troops on the patrolled line itself, and therefore an intensifying problem of frontier control.

Of course, the most graphic illustrations of the changing role of the German-Raetian frontier are the decisions to close the gap between Upper Germany and Raetia, constructing the Outer frontier, and, later, to add the *Pfahlgraben* and build the Raetian Wall. It is notable how more closely spaced are the

towers on the new Outer frontier between Miltenberg and Lorch. Its dead straight alignment has been the source of much debate. It certainly implies, as do the other realignments of the Upper German line, a lessening of the concern about long distance observation, and infiltration from particular points, displayed by the older, topographically sited frontier stretches. The need is increasingly to draw an arbitrary, preclusive line across an entire landscape.

It seems reasonable to link these changes on the Continental frontiers to the military crisis which assailed the frontier from the mid-Antonine period and which reached its climax in the Marcomannic wars of Marcus Aurelius. The earliest attested troubles in Upper Germany and Raetia are invasions of the Chatti in 162 and 172 (SHA Marcus 8, 7-8; SHA Didius Julianus 1, 6-9). The completion of the Outer frontier precedes these invasions slightly, but this may suggest that conditions on the frontier were degenerating into instability before the first invasion that we hear of in 162. This would explain the odd timing (at the end of Pius' reign) of the probable date of the advance. Indeed, M Speidel, accepting the epigraphic evidence which indicates (Alföldy 1983) that C. Popilius Carus Pedo commanded extra troops in addition to the army of Upper Germany, has suggested (1987, 236) that:

'The fact that in the years from 151 to 155 expeditionary armies had come to Germany is of great interest in assessing the move there to the outer *limes*. The Chatti must have posed a major threat to both German provinces and their allies, and indeed, six years later, in a large-scale attack, they invaded upper Germany as well as Raetia. In the great second-century drama of the European nations hurling themselves against the frontiers of the Empire, the Chattan war, or threat of war, of 151-155 is thus revealed as the first act'.

There may even be a direct link with events in Britain, and the abandonment of the Antonine Wall. Speidel (1987, 236-7)

associates the absence of British troops detached to Germany in 151-55 with the 'Brigantian revolt' and 'first loss of the Antonine Wall'. He proposes that these troops, along with detachments from Germany and Raetia, returned to Britain in *c*158 (this providing the context for RIB 1322) to restore the Antonine Wall, but that their absence from Germany precipitated the Chattan invasion of 162, causing troop withdrawals once more from Britain and 'the second loss of the Antonine Wall around 163'. Speidel is surely right to associate the construction of the Outer frontier with unrest preliminary to the invasion of 162. However, the account of frontier history and troop movements which he arrives at takes its complex form because of an unquestioning assumption of the archaeological fact of there having been two periods on the Antonine Wall. A simpler solution, in the light of the absence of evidence for Antonine I and II on the Antonine Wall, would be that the transfer of troops from Britain to Germany in 151-55 led, by 158, to the beginning of the process of abandoning the Antonine Wall, and that when legionary vexillations returned to Newcastle in 158 it was to assist in the restoration of Hadrian's Wall. Thus it is possible that the withdrawal from Scotland and the completion of the Upper German-Raetian frontier were simultaneous and associated events, precipitated by unrest and threats of war in Germany and Raetia, set against a background of persistent military difficulty in Scotland.

Pressure on the Continental frontier continued to increase, and we must see the construction of the new continuous barriers, and the dispositions added under Commodus, against the background of the persistent unrest and instability amongst frontier peoples which must have accompanied the great Marcomannic Wars. The climax of those wars, in 169-71, with Roman armies defeated and plague ridden, and Italy invaded by barbarians, must mark a possible moment for the abandonment of the Antonine Wall in Scotland, as suggested by Daniels (1991) as a further alternative to the widely accepted date of *c*163.

In part the pressures behind this development may have been exacerbated by the presence of the Roman frontier itself; the completion of the formal frontier may have alienated once friendly peoples and contributed to the polarisation between an excluded, coalescing society anxious to share the wealth of the empire, and the beleaguered occupants of that empire. Thus the Hermunduri, noted (6.2.3) as being particularly friendly and trusted traders across precisely that gap in the frontier which the mid-Antonine completion closed, may well have resented exclusion beyond the new preclusive border of the empire. Such tribes could in these circumstances themselves become the threat against which frontier installations were directed: we hear under Marcus of 'tribes which had fled before the pressure of remoter barbarians, threatening war unless they were taken into the empire' (SHA Marcus 14.1). It is said that when the situation degenerated under Marcus, ie shortly after the completion of the Outer frontier, 'all the peoples from the limit of Illyricum as far as Gaul had conspired together' (SHA Marcus 22.1). Such a conspiracy perhaps involved formerly friendly peoples, such as the Hermunduri. Obviously, greater and more distant migrations probably caused the pressures on these frontier peoples, but it is interesting to note that the Roman response - a move to a more preclusive frontier line, a more clear distinction everywhere between those within, and those excluded from the empire - probably united the excluded ones into an ever more formidable threat to the frontiers. Precluded from the empire, and under pressure from westward tribal movements in Europe and Asia, such peoples became resentful and formidable opponents.

J C Mann has suggested (1974, 40-41) that an exactly similar situation came to prevail in Britain: '...the rise of the Pictish kingdom was clearly a reaction to the continuing presence of Rome to the south...The process has an exact parallel in the fusion of peoples on the Continent, in the face of Roman power, into such great federations as the Saxons, the Franks and the Goths. The Pictish kingdom was a product of the

Roman presence in Britain'. As in the case of Germany and Raetia, it is probable that the tendency towards coalescence amongst people north of the Highland line in Britain began at some time in the middle of the second century.

6.4.7 The third century and beyond

When the German and Raetian frontiers began to be strengthened from the mid-second century onwards, they began to approach, in places, the intensity of preclusive coverage displayed on the British Walls. Yet even at their most elaborate, the linear frontier systems of the Continent were rarely as intensive as those of Britain. An intensification of frontier installations is presumably what we might have seen if the frontier in Britain had stayed on the northern line. It is what we do see during the brief occupation of the Antonine Wall.

However, because occupation in Britain could not be maintained up to the Highland line, from the mid-Antonine period into the third century control up to the Highlands was based upon outposts and diplomacy. This outward looking aspect of the northern frontier has long been realised. Formerly it was seen as 'using the outposts north of Hadrian's Wall as the bases for long range scouting and intelligence operations, in conjunction with the system of supervision implied by the *loca* listed by the Ravenna Geographer' (Mann 1974, 37). In addition to the outpost system as long understood, we might now add the possibility of a 'coastal province', where distant outposts such as Carpow and Cramond observed and controlled affairs in inland areas without recourse to full occupation of the territory. This was a highly economical way of exerting control, which finds parallels elsewhere; its success may in part have relied upon the willingness of peoples south of the Highland line to cooperate with the Romans, in the face of the ever increasing threat from the coalescing confederation to the north. Perhaps it was the decay of this diplomatic agreement

under pressure and instability from the north which caused the breakdown of this system of control.

In Germany the linear frontier, although strengthened, could not withstand the formidable invasions of the mid-third century, and by the 260s, now an anachronism from a former age of frontier control, was swept away. Of course, the Romans probably withdrew the troops themselves, because they were more urgently needed to stem the attacks on the central Danube frontier, which represented a threat to Italy itself. But it is notable that, as in the case of the Antonine Wall, it was not possible to continue holding the Upper German and Raetian land frontiers with a garrison appreciably smaller than that which they had possessed for so long. In Britain there was no linear frontier on the northern line to be swept away, but in an equivalent process the system of control to the north seems to have disappeared at some stage in the third century, with even outpost forts relatively near Hadrian's Wall, such as High Rochester and Bewcastle, being given up by the early fourth.

In the fourth century the British and Continental frontiers still paralleled each other; each forced back from the 'natural limit' of expansion to a conveniently defensible rearward line - Hadrian's Wall in one case, the Rhine and the Danube in the other. And in each case a new distribution of forts, representing a defence in depth, had to be developed behind the Wall or river.

Chapter 7

FRONTIER DEVELOPMENT AWAY FROM THE LAND-FRONTIERS OF NORTHWEST EUROPE

It is necessary to survey briefly the military frontier systems employed outside Britain, Upper Germany and Raetia, in order to establish the incidence elsewhere of formal linear systems of the type which formed such a consistent feature of the land frontiers of those three provinces. A study of the numerous circumstances in which continuous linear frontiers were not in fact used, is useful in determining why it might have been felt necessary to provide such elaborate systems particularly in northwest Europe. The other frontiers of the empire are treated under four heads; continental Europe, Dacia, the East, and Africa.

7.1 Continental Europe (Figs 25, 26)

The earliest known linear arrangements of frontier garrisons are those that had been established by the reign of Claudius along the lower Rhine and upper Danube in Raetia. The latter was to be short-lived, apparently being an intermediate stage in an uninterrupted advance; but on the lower Rhine one of the great linear frontier cordons, which survived, intact, into late Antiquity, was essentially formed by the time of the halt on the Rhine following the cessation of Corbulo's campaign beyond the river in 47.

Although at first sight it is tempting to equate these linear developments with the linear dispositions in Upper Germany, Raetia and Britain of the Flavian period and onwards, there are various striking, but rarely considered differences between the development and function of the land and river frontiers. These differences go a long way to explaining why the great rivers did not develop in the same way the familiar paraphernalia (watchtowers, continuous barriers) of linear land frontiers.

It was argued above (3.3) that the lengths of artificial linear frontier which began to appear beyond Rhine and Danube after *c*90 (and in Scotland in either *c*80-81 or *c*90) resulted from a specific decision that expansion in certain areas had ceased; this began to happen quite suddenly, and quite late in the history of military affairs beyond the great rivers (and in Britain). The subsequent development of these linear frontiers represented the working out of that decision.

In complete contrast, the formation of the military dispositions arranged along the great rivers was a process that had been going on continuously since the Augustan-Tiberian period, when sites such as Bunnik-Vechten on the Lower Rhine, Linz in Noricum and Oescus in Moesia on the Lower Danube had been founded. As early as the campaigns of Lentulus (at some date between 10 BC and AD 11) the Danube was seen by the Romans as a boundary which the tribes beyond could be made to respect (Florus, *Epitome* 2, 28; Wilkes 1983, 276 n.13; Syme 1971, 40). At this early date, diplomacy and the deterrent value of rearward Roman forces were sufficient to control affairs on the Danube: 'Military occupation of the Danube frontier at the time of Augustus was a last resort' (Mócsy 1974, 36).

It was in the Claudian period that both on the Lower Rhine and on the Upper Danube, sites began to accumulate in more linear fashion along the rivers themselves. Whether the bases along

the Rhine were coming to be perceived of in a different way under Claudius, perhaps more in the sense of a frontier, is a difficult question. The archaeological evidence shows that development of this frontier took place in the Claudian period, but also that this was no new or sudden development. The samian ware suggests, for example, that Valkenburg may have been founded in the later 30s (Pferdehirt 1986, 264-5). It may simply be that as the notion of the conquest of Germany beyond the Rhine receded further into the distance, and as the diversion of the British expedition gained momentum, it was found prudent to site the garrisons along the great communications corridor formed by the Lower Rhine.

Although auxiliary forts were in existence on the Danube by this time (and the fortress of XV Apollonaris at Carnuntum and bases for VIII Augusta at Novae and V Macedonica at Oescus), the famous career of the Moesian governor Plautius Silvanus Aelianus (ILS 986) demonstrates the continuation into Nero's reign of the Augustan policy of predominantly diplomatic handling of the cross-Danube tribes, and shows that the river was still perceived as marking the boundary of Roman territory. Again, the growing concentration of forces on the river itself may at this stage have had as much to do with the garrisoning of a major artery of communication, and vital organ of mediation between Rome and the barbarians, as with the formation of any kind of preclusive cordon to prevent movement. Naval activity on the Danube dated from the Augustan period, and the famous fleets *Pannonica* and *Moesica* were active long before they received their formal titles in the Flavian period (Starr 1941, 131-2).

At this stage in their development the great rivers and their dispositions of forts may be tentatively compared to the Fosse Way during the conquest period of Britain, where a linear disposition of sites should not be taken to denote a 'frontier system'. On the Danube under Claudius and Nero the 'frontier

system' remained on the level of threatened military power, diplomacy and personal relationships between Roman governors and barbarian kings; the Roman military sites represent an aspect of the military force that underwrote this policy, but their situation was dictated mainly by considerations of supply, communication and dominance over local peoples.

The Middle Danube moved decisively to the possession of a preclusive linear system of forts in the reign of Vespasian, rather than in the later Flavian period as was once thought (Gabler and Lörincz 1977, 174-5; Wilkes 1983, 265-6). This great military re-organisation of the river in the Flavian period was a direct response to the threat posed from across the Danube during the civil war of 69, when, although diplomacy maintained the peace in Pannonia, Sarmatians were able to take advantage of the Romans' distraction and invade Moesia. While XV Apollinaris remained the sole legion based on the Pannonian Danube, the number of legionary bases on the Danube bank in Moesia rose from two to three or four under Vespasian.

Thus it was a long-term policy to garrison the river, and as the policy intensified into the development of a linear chain of garrisons under the Flavians, the barbarian threat grew correspondingly more serious. Disaster struck again, beginning with the destruction in Moesia of Oppius Sabinus and a legion by the Dacians in *c*85-86, proceeding to the annihilation of a further army under Cornelius Fuscus *c*87, and culminating in the destruction of another legion *c*89-92 in the Suebian-Sarmatian war that followed Domitian's conflict with the Dacians. These events precipitated the movement of still more troops to the river line; a reaction which best explains the contemporary and sudden genesis of artificial watchtower frontiers in Upper Germany and Britain, where the Danube emergency, and its drain on troops, seems to have had the effect of definitively ruling out the possibility of imminent further military advance.

On the eve of Trajan's first Dacian War, while Moesia, recently divided by Domitian into Superior and Inferior, still possessed some three or four legionary bases on the river, a transformed frontier in Pannonia spectacularly exhibited the measures taken in response to the deluge of the 80s and 90s. By the end of the century Pannonia had achieved its permanent total of four legionary bases on the Danube (Vindobona, Carnuntum, Brigetio and Aquincum) in addition to a formidable chain of auxiliary forts (Wilkes 1983, 270; Mócsy 1974, 88; Gabler and Lörincz 1977). The Danube in Noricum was garrisoned by auxiliary forts by the Flavian period (Wilkes 1983, 270; 285 n.84; Alföldy 1974, 146); the Raetian Danube frontier east of Eining between *c*80 and *c*90. Before *c*85, auxiliary units had begun to accumulate on the Moesian Danube (Wilkes 1983, 266); by this time there were probably fleet bases on the lower part of the River (Wilkes 1983, 280 n.51). In Moesia the movement of auxiliary units to the river line was slower than in Pannonia, although Moesia Superior and Inferior soon had their legions arranged on or near the river. In the immediate aftermath of the first Dacian war of Trajan occurs the first evidence for the garrisoning of the lowest part of the Danube, with two new legionary bases, Durostorum and Troesmis, after the second Dacian War (Wilkes 1983, 273; Poulter 1986; 1990).

The crisis of the 80s and 90s provides the key to the essential difference between the land frontiers of the northwest and the great river frontiers. In the former case some military advance had taken place beyond the Rhine in Germany and the lowland zone in Britain, and was gradually progressing; at once events dictated that these areas of military occupation should expand no further, and quite suddenly the limit of that occupation had to be carefully defined. On the great rivers, in contrast, military and diplomatic power had been devolving onto the rivers since the Augustan age. In the former case, a line of security had to be invented; in the latter, a great line of military defence was being completed, and it was the

emergency which interrupted the latter process in c86-92 which forced the halt in the former case, and permanently tipped the balance of military effort towards the Danube.

The lengthy development of the Danube as a demarcation of territory, military frontier, and garrisoned line of communication, helps to explain its differences from the artificial land frontiers of the northwest. In this light the lack of evidence for linear frontier paraphernalia along the river at an early date is not so surprising. No evidence has yet emerged for continuous chains of timber watchtowers along any part of the river. Individual timber watchtowers of early date are known in Pannonia, near Fischamend, west of Carnuntum (RLO 4, 23), and at Pilismarót-Basaharc, west of Visegrád in Hungary (Tóth 1984; Visy 1988, 70), but these have never been shown to be elements in continuous cordons. It has been noted that individual towers placed according to local needs may be characteristic of garrisoned communication lines, such as the Trajanic Stanegate in Britain, and in these cases signify something different from the towers which make up continuous frontier cordons.

Although it is possible that erosion of the river's banks has removed the evidence, it is notable that more towers of later date may still be traced, and it is tempting to wonder whether the long-standing nature of the great river as a recognised and patrolled boundary rendered the instant creation of watchtower systems as seen on land frontiers elsewhere unnecessary. Indeed watchtower systems seem to have been invented elsewhere specifically to provide the kind of patrollable line of demarcation and observation that the great rivers themselves had long offered, where they existed. Why, then, the apparent representation of a watchtower system on the Danube on Trajan's column at the outset of the first Dacian War (Lepper and Frere 1988, 47-8)? It is possible that some misunderstanding has occurred: the Danube on the Column perhaps represented the

concept of a frontier, and the elaborate detail with which frontier installations are represented on the column could have been drawn from the artist's knowledge of such systems elsewhere; nearby examples could be found on the land frontier, perhaps created as early as Trajan's time, in Dacia beyond the Danube (7.2 below), and perhaps these were applied in error to the river frontier as represented on the column. It is telling that the same absence (to date) of continuous watchtower systems of late-first or early-second century date is also characteristic of the Lower Rhine and every river frontier in Upper Germany beyond the Rhine.

However, if watchtower systems were not employed along the river systems, this does not mean that the river garrisons were not directed against movements or infiltrations from across the river. On the contrary, in their developed form the differential distributions of forts along the Lower Rhine and Danube demonstrate that the army was concerned with such threats. The spacing of units along the Lower Rhine from the time of Claudius onwards was far from regular. The 120km between the sea and the junction of the Rhine and Waal always had a much greater density of forts than the remaining 160km of the Lower Rhine; in the former case the distance between forts varies between 6 and 20km, while the last 160km before Upper Germany displays intervals between its irregularly spaced forts of up to 35km. These variations are related to the topography beyond the frontier. South of the Rhine-Waal confluence the right bank of the Rhine is overshadowed by steeply rising mountains, evidently acting as a natural obstacle. North of the confluence, the river ran through a treacherous landscape of flat polders, ridges and trackways. It has been argued by W Willems (1986, 69-70) that each of the forts in this area is linked to the hinterland by a direct route over a natural ridge; in other words they controlled routes of access that were both more numerous than further south, and well known to the native peoples of the area, for whom the river presented no

real obstacle in itself. In a similar way the natural protection of the Danube frontier of Raetia east of Eining by the mountain ranges of the Böhmerwald and the Bayerisch Wald (Baatz 1975, 277), and the absence here of a tribal population beyond the frontier, resulted in an absence of forts in this sector before the mid-late Flavian period. Once they were provided, there was a notably wide spacing; for example 40km between Regensburg-Kumpfmühl and Straubing. This is to be contrasted with the much denser concentration of auxiliary forces on the middle Danube (spaced at about 20km intervals), facing open plains and populations. The uneven distribution of the legionary fortresses is closely related to population concentrations beyond the river. These variations show that it would be insufficient to think in terms of the river merely as a garrisoned line of communication, although it possessed that role: always employed as a demarcation of Roman territory, the Lower Rhine and Danube by the late first century functioned as linear systems directed at excluding certain invaders, or potential invaders.

For all of the possible absence of watchtower chains, and certain absence of running barriers, on the great rivers, their obvious linear arrangement - distinct by the time of Claudius, or at the very latest, on the Danube, by Vespasian's reign - may well have provided the direct inspiration for the invented land frontier systems. Furthermore, for all of their differences, the land and river frontiers of northwest Europe had one overriding similarity: each came to comprise a preclusive linear system arranged against the possibility of disruptive large-scale population movements or outright invasions. In this the two basic types of northwest European frontier had much more in common with each other than with the frontiers of Africa and the Eastern desert.

In the great Marcomannic Wars of the 160s and 170s, the diplomatic relations with the tribes beyond the Danube were

torn apart, and although interesting frontier agreements with the tribes were made under Marcus Aurelius and then Commodus, continued instability on the Danube now led to a provision of new fortresses in sectors previously lightly garrisoned; Regensburg in Raetia, and Lauriacum in Noricum, and the movement of V Macedonica from Troesmis into Dacia. If towers had formerly not been as important on the River frontiers as elsewhere, a famous series is now attested under Commodus on the Middle Danube. Although the system, with land frontiers here and there beyond the rivers, was to survive for another century, the pressures that would eventually make the land security borders untenable had begun.

For a short time, then, the northwestern land frontiers and the great river frontiers came increasingly to resemble one another; the land frontiers, sometimes originally thinly garrisoned by detachments from a distance, acquired a denser garrison (we have noted the additions to the Upper German frontier from the mid-second century onwards); the Danube eventually came to possess systems of watchtowers. The land frontier systems, originally security fences, came to face increasingly dangerous incursions; on the Danube (where the military threat had, at least in certain areas, always been potentially severe) infiltration grew to be a much greater problem as the situation deteriorated, despite a recovery of the situation and an extensive military and diplomatic control beyond the Danube under Septimius Severus and his successors (Pitts 1989). But even now a further shift of military emphasis towards the Danube was taking place (Mócsy 1974, 200-12). Finally the land frontiers were everywhere given up in favour of heavily defended river frontiers of the type which the Danube had long known. Against the long history of the river frontiers bequeathed by Augustus, the land frontier in Upper Germany and Raetia was really very short-lived (although rationally conceived and completed in its own terms). It was an artificial invention, left out on a limb as a result of the

Danubian crisis, already having to adapt itself to intensifying dangers by the time of its completion. Neither did the new late-Roman frontiers on Upper Rhine and Danube display the characteristic installation cordons of the lost artificial land frontiers.

7.2 Dacia (Fig 26)

One aspect of the crisis on the Danube in the 80s had been Domitian's War against the Kingdom of Dacia. Whereas pro-Roman factions could successfully be maintained amongst the Quadi and Marcomanni until the 160s (Pitts 1989), these peoples being subsidised in order to prevent them uniting with the formidable Sarmatians beyond, the dangerous independence of the Dacian state necessitated more and more direct Roman intervention. The persistent reluctance of Decebalus' kingdom to form a stable part of the Roman diplomatic settlement beyond the Danube frontier led to its destruction by Trajan in his two great wars, and the creation of a Roman province beyond the river. The sophistication of the Dacian state, which possessed a stable political structure (Wilkes 1983, 264), of course tended to make it an easier proposition for absorption into the Roman world; to Trajan, the annexation of such a militarily important area, containing a recalcitrant kingdom of near-Hellenistic type, must have seemed a matter of urgency. The military importance of Dacia is revealed by Hadrian's division of the new territories into provinces which could work in concert with the Danube military commands in order to enclose the Iazyges to the west and the Roxolani to the east (Wilkes 1983, 275).

In Dacia after 106 a land frontier had to be developed, and significantly it was of a different kind from its predecessor on the Danube, displaying artificial cordons of installations (and later continuous barriers) analogous to those in Upper

Germany and Britain, where the first linear frontier works had been pioneered.

The Dacian kingdom was centred on the Transylvanian plateau, made a natural fortress by the surrounding Carpathian and Apuseni mountains. Viable routes through the mountains are formed by the rivers Olt, running south into the Danube, the Mures, running into the Tisa to the west, and the Meses and the Somes, which run through a wide gap in the northwestern part of the mountains. This was always the most vulnerable part of the Dacian frontier, with rough but passable country which invited infiltration.

Under Trajan, Dacia possessed two legionary fortresses, at Bersobis (12) (IV Flavia) and Apulum (87) (XIII Gemina), both at key points on the routes leading to the heart of the kingdom. The reduced Dacias Porolissensis, Superior and Inferior established by Hadrian possessed a single legion (Apulum), and saw the abandonment of Transdanubian Moesia.

In the frontier system as elaborated under Trajan and Hadrian, it was the areas unprotected by the natural Carpathian frontier which received the majority of installations. A ring of forts lay behind the Carpathians, individual sites guarding natural routes through the mountains. Key points in the west (IV) included Tibiscum (17), which was extended to 5.44ha and housed up to three units; it is generally supposed that part of such a force would always have been outposted to frontier watchtowers or fortlets, but in this sector these await discovery. Micia (19), very large at c6.50ha, continued to be important, holding both an *ala* and a cohort at the point where the Mures valley from the west and the route from Viminacium to the southwest intersected. The use of large multi-unit sites at vulnerable passages and key points like this is different from the more regular spacing of single unit forts on the second century frontiers of Britain and Germany, where rather than plugging

holes in a natural frontier the Romans had to draw a line more arbitrarily through homogeneous areas; however, such multi-unit strong points recall the use of forts such as Echzell in the early Wetterau arrangements of c90-100. Other important sites in the northwestern Carpathian passage were the Porolissum forts (25, 26), Romanas (23) and Tihau (27). In the eastern Carpathians, important sites included Livezile, Brincovenesti, Calugareni and Sarateni (30, 32-34).

The Olt, already a garrisoned route under Trajan, was provided with stone forts under Hadrian. Hadrianic inscriptions date Radacinesti (74), Bivolari (76) (Gudea 1980, 804) and Copaceni (79) (Cataniciu 1981, 29; the characteristic plans and sizes of these forts allow the dating of others by analogy, including Racovita (80), Titesti (78) and Acidava (69). As far north as Castra Traiana (73) the Olt forts may have had a Trajanic foundation. Beyond the Olt (in the same way that Hadrian's Wall and the Raetian frontier were constructed in advance of pre-existing roads) the 'Transalutanian' line of forts apparently originated under Hadrian (Cataniciu 1986). The so-called *limes Transalutanus* protected Hadrian's Dacia Inferior south of the Carpathians against the open plains of eastern Wallachia.

Gudea (1979) has usefully divided the defences of Dacia into the sectors referred to here, and suggested a theory of the working of the system as it must have existed from the reign of Hadrian. The system is said to comprise three elements: a central defence with mobile forces (D), the legions, at Apulum, and, after 170, Potaissa. Then there was an intermediate ring of forts, manned mainly with cavalry units (E); at one of them, Optatiana (91), Dacia's *ala milliaria* was housed for a time. A road system, imperfectly traced, most probably allowed movement around the circuit of these forts, and also fanned out to allow access to the outer frontier forts. Thirdly, the outer frontier forts (V, VI, VII) generally contained infantry.

These forts usually kept the Carpathians in front of them, and it is on the heights between 3 and 10km beyond the forts that systems of watchtowers have been traced for long distances.

Some 61 towers are known in the Meses sector in the northwest. All are of stone; dimensions vary, and both square and circular examples have been found. It is curious that no timber towers have been found, but this does not mean that they did not exist. There is no dating evidence, but the range of towers can hardly represent a single date, and some, eg Poieni, have exhibited more than one phase. Smaller valleys have also been found to be guarded by *burgi*, by which Roumanian archaeologists seem to mean fortlets; and by short stretches of earth rampart (Cataniciu 1981, 49).

Although intricate attempts have been made to show how such towers may have functioned as advance warning systems for individual forts (see, eg, Gudea 1986, figs. 17-19; Gudea 1971, fig.1), others have rightly considered (Macrea 1969, 231) the Meses towers to form 'a closed limes, built to the pattern of the one in Upper Germany' (Ferenczi 1967, esp. fig.4: conveniently reproduced in Maxfield 1987, 183; Cataniciu 1981, 101 n.438). The often reproduced map of towers on the heights in relation to Bologa fort displays a linear arrangement to the towers, and a closeness of spacing (in places less than 1km, even though some towers in the series probably await discovery) that would be superfluous if these were signal stations communicating hostile movements to the fort. On the contrary this system of towers seems to follow the model of the classic northwestern watchtower systems in being directed towards close ground surveillance as well as linear communication. The references to stretches of running barrier and fortlets in lesser valleys reinforces the picture of an artificial frontier closely related to the examples otherwise confined to Britain, Upper Germany and Raetia. In Dacia the extreme nature of the topography has simply rendered the system less continuous; this

is of great interest in emphasising the practical nature of such border installations; in Dacia in their discontinuous state they can hardly have legally defined the boundary of the empire.

In the northern sector, too, in front of the forts of Tihau, Casei and Ilisua (27-29) (VI), a series of towers and fortlets has been traced. At least 50 sites are suspected as Roman towers, and there can be little doubt that these also represent a continuous watchtower frontier (Gudea 1979, 74; Cataniciu 1981, 49-50).

A better known system of walls lies in front of the forts and town of Porolissum, where the Carpathians break to admit raiders. Here an earth bank (8.50m wide at base, 1.50m surviving height), with ditch (3.50m wide, 1.40m deep), stone towers, and fortlets, runs for 4km. In places a stone wall replaces the bank. At one point, there is a double line, although whether this represents two periods is not clear (Cataniciu 1981, 48-49).

On the '*limes Transalutanus*' a continuous frontier wall was provided. Although there is no dating evidence, there are indications that the barrier itself may have been provided at a later date than the forts themselves; it cuts through one of the Baneasa forts; its relationship to the northeast angle of Flaminda suggests that the fort existed first. Of varying dimensions (according to Cataniciu's (1981) description of the unpublished account by Tocilescu), the barrier is recorded having no ditch and two discernible phases: first, a timber construction, filled with earth, and burnt in places; second, an earth mound heaped over the remains of the former. It is argued by Cataniciu (1981, 33) that the barrier was only supplied in limited sectors of plain where no natural obstacle was provided by high ground: between the forts of Flaminda (51) on the Danube and Gresia (56), and between Urluieni (58-9) and

Albota (63); however, it is possible that more once existed and has been destroyed by modern agricultural activity. This could also apply to early watchtowers along the transalutanian line. At present only individual tower sites are known.

7.3 The East

7.3.1 Arabia and Southern Syria: the desert frontier

In Arabia and Syria Roman military control reached a natural frontier at the edge of the desert. The frontier installations roughly coincide with the line east of which there is insufficient rainfall to sustain efficient dry farming (Banning 1987, 53; see map with sites and 200mm isohyet in Gregory and Kennedy 1985). The great caravan routes coming into Syria from the Red Sea and from the East also skirted the borderland between desert and sown, for they took the most direct routes without actually plunging into the remote desert, in the manner of a maritime *periplus*. These routes could not lose sight of water sources. A lesser trade route came from the Arabian peninsula through the Wadi Sirhan. All these routes had to be protected, for the prosperity of the cities of Syria and Arabia depended on their traffic (Rostovtzeff 1932, 1-35; Jones 1937, 228; Matthews 1984, 170-1). On this desert frontier the Romans often left the policing to others, Palmyra being the most famous example. It was not Roman soldiers, but a certain Soados, a private citizen of Hadrianic Palmyra, who was thanked in an inscription for saving 'the recently arrived caravan from Vologesias from the great danger that surrounded it' (Matthews 1984, 167). Sooner or later the protection of caravans and the pursuit of bedouin raiders became concerns of the Roman army throughout Arabia and Syria, although the *strata Diocletiana* did not have to be built until after the fall of Palmyra in 273. It is notable that the frontier installations on the desert edge coincide with the principal routes; little

permanent military occupation is recorded beyond or away from them. The other major job which confronted the Roman army on the same desert fringe was the monitoring of seasonal movements of transhumants in and out of the sedentary areas (Parker 1986, 8; 129; Banning 1986). What would have been the point of constructing continuous barriers over a very long distance to exclude a desert with very few inhabitants except nomads who approached the agricultural zone by predictable routes? There is very little evidence for serious nomadic raids across the frontier before the late-Roman period (Isaac 1990, 72), although some (eg Parker 1992, 468-70) have postulated more raiding than that for which there is direct evidence.

This situation contrasts sharply with that on the European frontiers where there were more serious military threats at an early date and a persistent tendency towards large-scale and destabilising population movement. Even where, as was argued for Upper Germany and Raetia, the occupation of a well-defined area beyond the great rivers was rationally completed, the process still left populations excluded from the area of occupation and therefore led to a border problem, and the eventual invention of ever more elaborate artificial installations, for the points of diffusion were more numerous and less predictable than on the edge of the Syrian or Arabian desert. In the west, auxiliary units tended to remain concentrated in undivided form in their own bases, which were themselves concentrated along the linear frontiers or in the frontier zones (the rather exceptional use of detachments on the Antonine Wall was a function of the need to *concentrate* more troops there than originally intended).

Syria and Arabia do not display the same intensive concentration of a frontier army along an outer line as is seen in the western frontier provinces (except Britain); rather the army in the East enjoyed a peculiarly close relationship with cities. The Hellenised provinces of the East attracted Roman

forces to their urban centres, in clear contrast to the West. In the province of Arabia, Petra, Gerasa and Philadelphia held vexillations (Kennedy 1980a, 289-302), while the capital city of Bostra was the base of *III Cyrenaica*. A legionary presence was long maintained in the cities of Jerusalem and Caparcotna in Palestine. At Palmyra and Dura a bewildering range of legionary vexillations and auxiliary units is attested in the second and third centuries (Rey-Coquais 1978, 68-9). In northern Syria, although little is known in detail about the legionary bases, *IV Scythica* and *XVI Flavia Firma* seem to have been connected with Zeugma and Samosata, principal cities of the kingdom of Commagene.

This relationship between the army and cities has recently been explained in terms of the need to control subjugated populations (Isaac 1990), but this only seems really convincing for the legions stationed in Palestine. Nor can it simply be that the region was sufficiently urbanised to allow the army naturally to gravitate to cities for its accommodation, for in the province of Africa, where cities were well developed, along the coast and coastal plains, the army soon left the cities behind and developed its own network of communication and occupation in advance of the city areas, ie more in the style of western frontier systems. The one factor that the Eastern frontier was unique in possessing was an external threat, in the shape of Parthia, of equal sophistication and military potential to Rome. This entailed the permanent garrisoning of a large legionary force on the Eastern frontier. However, the combination of a state powerful enough to stall Roman advance, and the geographic circumstance that (in contrast to Africa) the desert began close to the city zone, dictated that the legions be accommodated in the coastal cities of Syria, Palestine and Arabia. Against this background the basing of legions seems to have been carried out with broad strategic considerations in mind, cities usually having developed at nodes of communication which formed natural bases for mobile

troops. Key cities such as Samosata and Zeugma were safeguarded, as well as cities on the principal routes between the Mediterranean and the interior, as the continuing legionary activity at Raphanaea and Apamea illustrates. The continued use of Raphanaea and the Severan use of Apamea by legions also shows a partial continuation of the Augustan policy of concentrating the eastern legions in the Syrian coastal area so that they could be employed rapidly where required (Mann 1974, 522-3). Although the legions in Palestine were no doubt situated with internal control in mind, *III Cyrenaica* at Bostra was placed as far north as possible in Arabia, so that while watching that province it also could swiftly intervene in any mobilisation against Parthia further north. This anticipates the late-Roman situation where seiges of cities formed the centre-pieces of the wars between Rome and Persia, and indicates an awareness, as early as the second century, that in a rich urban area that was theoretically open to invasion by Parthia, the legions were better employed in the cities themselves than on the desert edge, where, after all, the threat posed by nomads was insignificant enough to be dealt with by a very small frontier force on its own. The great military presence in the East - another contrast with Africa - therefore, had little connection with the small, scattered 'desert castles' which policed the routes into sedentary land. In the event of war with Parthia the arrangement of posts which has been from time to time interpreted as a linear system would become irrelevant to whatever military struggle ensued (which would typically involve cities and mobile forces). It is misleading to explain the specific function and historical development of frontier installations in terms of major historical wars, although it is standard to centre interpretations of the eastern frontier on the chronicle of the wars between Rome and her eastern neighbour.

Units living in cities seem to have been prone to outposting in detachments (Rey-Coquais 1978, 70) to carry out the small-scale

police work necessary on the desert frontier. In Arabia the trade routes which contributed so much to the prosperity of the cities were policed from small forts placed at points of water-supply so that caravan raiders could be deprived of it and transhumants carefully watched and regulated. Hence watchtowers and forts on wadis running east-west. The location of military sites (where they are not simply stations on the strategic north-south road) in corridors of access from the East is clear from any general map of Roman dispositions on the Arabian frontier (eg Parker 1986, 1390). Bowersock (1983, 105) writes that 'along the approaches from the east into the Wadi Hasa and the Wadi Mujib there are thick clusters of forts and watchtowers that protect the settled land'.

Even so, few of these sites can be shown to be earlier than Tetrarchic in date. The Severan outposts of Qasr Uweinid and probably Qasr Asaikhin and Qasr Azraq, which supervise the major Wadi Sirhan, may be seen in this light (Kennedy 1980b). To the south, on the route which runs parallel to and east of the *via nova Traiana*, following the Darlbel Haj, the fort at Jurf ad Darawish, for which a third century date has been cautiously argued (Parker 1986, 91), is typical at only 0.13ha. It is part of one of a series of clusters of installations occurring on wadis running west to the *via nova*. In this case the fort is connected with the approach to the Wadi Hasa. In the wadi itself, less than 20km to the north, lie two sites, Er Ruweihi and Umm Ubtulah, which may have had their beginnings in the Principate (Parker 1986, 89). Most sites on the frontier, however, such as Qasr Bshir, on an approach to the Wadi Mujib and only 0.31ha in area, cannot be shown to be as early as the second or third centuries. Even if we take the frontier at its period of maximum elaboration, from Diocletian onwards, there is no continuous linear system to be seen, even though much work has been carried out with the expectation of a linear frontier having existed at some time. Its real absence is revealed by the maps published by Parker (1986, 138-40).

Parker (1980, 871) clearly characterises the Diocletianic frontier in Central Arabia as a broad fortified zone. He argues that this entailed the abandonment of 'the Antonine concept of a linear defence'. But on the available evidence others have argued that the Arabian frontier, from the start, had not been linear, but rather a fortified region (Bowersock 1983). Taking the most generous view of the likelihood of sites being Principate period, they seem mostly small, widely spaced, and their position determined by the relation between settled and desert areas and by routes. While it is easy to see how they may have protected traffic on the great north-south arteries and supervised nomads using predictable corridors of access, it is difficult to see how these small posts, scattered in clusters, could have prevented large numbers of raiders or invaders, in any strategic or tactical way, from crossing the frontier.

On the southern sector of the *via nova* it has been claimed that Roman forts established in the early second century formed a defended frontier line (Parker 1986, 112; see also 1985, 76). Even if it is accepted that forts existed on these sites at such an early date - some have doubted their very existence (for example, Eadie 1986, 246-7; Lander 1986, 447-8) - and we accept Humayma, Quweira, Khalde and Kithara as Trajanic stations spaced at 20km intervals, it must be said that the frontier this has been said to resemble (Parker 1986, 129), the Stanegate in Britain, is itself most unlikely to have formed a linear defended frontier (2.4 above). One of the aspects of the Stanegate which militated against its identification as a linear frontier was the amount of Roman military activity which persisted far to the north of the road line, probably even after c105, and certainly at the period when forts along the Stanegate were at roughly 20km intervals. This should recall Graf's demonstration that Roman military and diplomatic control did not stop short on the *via nova*: inscriptions from Rawwafa, over 200km beyond the Trajanic road, in the Hejaz, show Rome in

the 160s dealing with a confederation of nomadic tribes, presiding over their meeting place and acting as an intermediary in their disputes (Graf 1978; 1989). As in the case of the Stanegate, the real reason for the placing of forts along the *via nova* was the need to safeguard an important road.

7.3.2 Northern Syria and Cappadocia: frontiers bordering on kingdoms

Moving north of Arabia and the desert part of the Syrian frontier, there was a greater legionary presence as befitted the parts of the eastern frontier covering the possible northern routes between Parthian and Roman empires. The establishment of legions in three bases along the Euphrates - Zeugma, Samosata, Melitene - and a fourth at Satala, has been seen as a deliberate Flavian policy directed at the threat posed by tribes in the Caucasus and those pushing them from beyond (Bosworth 1976): in fact something closely related to the contemporary development on the Danube. In the east there was the additional factor of deteriorating relations with Parthia in the aftermath of Nero's war in Armenia.

In Cappadocia a general paucity of evidence for accompanying auxiliary sites along the Euphrates before the third century has led to the suggestion (Crow 1986b, 87-8) that before that date there was no linear system on the river, and that the distribution of military inscriptions beyond the river line indicates a more complex form of diplomatic and military control reaching far into Armenia. Crow further suggests that the one known Flavian auxiliary inscription from the Cappadocian Euphrates (Dascusa) may relate to the garrisoning of the river crossing of a likely east-west road. However, on the model of the Danube (or for that matter, Hadrian's Wall), a strong military presence beyond the Euphrates would not be incompatible with garrisons on the river itself, and it must

remain a possibility that early sites have escaped detection. The Antonine Itinerary names places *per ripam* (as does the later Notitia Dignitatum), showing that sites existed in the third century of which no structural trace has yet been seen; they may very well have had a Flavian origin. If this was the case the Euphrates and Cappadocian land frontier may have been developed as a garrisoned line at the same time as the burst of Flavian activity on the Danube. The same epigraphic evidence used to argue for the absence of a linear system before c200 has been taken to imply a Flavian linear frontier building programme in the decade after 76 (French 1989, 2-3). Unfortunately the lack of evidence - and exploration - means that the question must remain undecided for the time being. However, what does seem beyond doubt is that, even if auxiliary sites on the river come to light, the Euphrates resembles the river frontiers of Europe in possessing none of the paraphernalia of land frontiers. Interestingly, there is a similar lack of evidence of watchtowers or barriers on the land frontier between the Euphrates and Trabzon.

Although no elaborate system of frontier installations has come to light, it is doubtful whether anything approaching an artificial frontier on the western model should be expected. The Cappadocian Euphrates, and the more northerly (later known) frontier line cutting through the Pontic Alps from the Euphrates to Trabzon (via Satala), ran through an inhospitable natural frontier land. This was pierced by certain routes suitable for strategic penetration, and the known legionary sites were established to control these points. These are not the circumstances in which continuous barriers or watchtower cordons were ever employed elsewhere. In the natural barrier of the Dacian Carpathians, for example, the provision of any kind of installation, including auxiliary forts, is thin or non-existent in comparison to the openings through the chain; on parts of the Danube facing mountains, forts were very widely spaced. Watchtowers (of unknown date) have been detected at

individual locations on the Euphrates (Crow and French 1980, 910), but these may relate to particular points where passage was easier, and, like the individually sited towers on the Danube, need not imply a continuous chain. In any case, they may well be late-Roman.

Furthermore, D French (1989, 2) has emphasised the connection between the wholesale absorption of the former client states of Cappadocia, Pontus and Commagene, and the creation of the Flavian road system, and perhaps riverine frontier, on the Euphrates: 'In annexing...[Cappadocia and Commagene]...the Romans were undoubtedly faced with an inherited concept of territoriality'. In these circumstances, the creation of a military frontier on the well-known and defined boundaries of ancient kingdoms did not necessitate the artificial delineation of a frontier, any more than on the Danube.

Thus it seems that, even if conceived as a potential line of defence under the Flavians, and supplied with legions, the Cappadocian frontier, by virtue of its strategic (rather than blanket preclusive) role, natural protection, and the diplomatic relationship enjoyed with Armenia, differed from those in Europe. In Cappadocia the threats were more specific and strategic: there was less need to construct a blanket frontier against unpredictable and unstable population movement. The boundary between Rome and the states beyond was well known and clearly marked. The closest relative of this frontier was the Danube, but the latter faced a volatile barbarian threat rather than sophisticated states, whether allied or, like Parthia, potentially hostile.

7.3.3 The Black Sea Forts

Sometimes perceived as a linear arrangement is the remarkable series of forts flung out from Trabzon (at the northern end of

the Cappadocian land frontier) and spaced around the eastern end of the Black Sea. Some of these forts were evidently held as early as Vespasian's time (Braund 1989, 33); by Hadrian's reign it is known from Arrian's *Periplus* that at least four forts were garrisoned beyond Trabzon: Hyssus, and three major forts on the Colchian coast stretching as far as Sebastopolis. Beyond this a further fort at Pityus, not recorded by Arrian as being garrisoned, may have been held before and was held after his time (Braund 1989, 33; ND Or. 38, 32). Speidel (1986, 658-9) has suggested a military site at Petra on the basis of a tile-stamp from Phasis.

Trabzon

24

Hyssus

[Rhizus]

150km

Absarus '5 cohorts'

100km [Petra]

Phasis 400 men

120km

Sebastopolis

60km

[Pityus]

Although this system of forts has in the past been perceived as 'a massive defensive system equivalent in purpose to the installations ranged along the Cumberland coast to protect the flank of Hadrian's Wall' (Mitford 1977, 509), it is fairly clear that the Black Sea forts do not have an analogous role to the Cumbrian coast stations. The latter protected the Roman province from attacks from the sea; the Black Sea forts were flung beyond Roman occupied territory. They in fact formed a system of outposts, intended to watch and interfere in the affairs of, and no doubt be the channels of diplomatic relations with, the complex of peoples living in the Pontic and Colchian regions - and beyond (Braund 1989).

If a parallel must be found for this kind of remote military control by use of coastal stations, it may be seen in north Britain, where, as was suggested above (5.6), coastal bases may have maintained control of a 'coastal province' on the eastern coast of Scotland in the first half of the third century. Although the overall distance around the Black Sea is much greater than that covered by the known Scottish coastal outposts, the intervals between individual anchorages/military bases are quite comparable; 100km between Absarus and Phasis, and 120km between Phasis and Sebastopolis, as compared to, say, a 120km sail from Cramond to Carpow.

While thus providing a fascinating example of long-distance Roman military and diplomatic control, the Black Sea forts, like the forts of the Scottish coastal province, do not represent a formal linear frontier in the preclusive sense. They mark the economical and remote control of peoples who lay within Rome's constituency, but who for one reason or another could not be directly occupied; because of the incomplete nature of the conquest of north Britain in the Scottish case, and because of the vast distances involved and the relatively stronger tradition of stable client relationships in the eastern example. The Colchian world was a natural extension of

the Pontic world of Cappadocia, and as with the coastal plains of eastern Scotland, there was a finite amount of it over which control could be exerted by coastal means. No such opportunity offered itself beyond the mainland frontiers of Europe, where any successful direct control beyond the linear frontiers would have had to have been part of a renewed large-scale conquest and occupation.

7.4 Africa

7.4.1 Mauretania Tingitana (Fig 28)

This was one of the two provinces formed out of the old client-kingdom of Mauretania under Claudius. Its relative lack of military importance is signified by the appointment of an equestrian procurator as governor. Yet the garrison of the province was proportionally as large (in comparison to its size) as those of Caesariensis or Africa. The formally governed Roman province remained confined to the prosperous cities of the coast and plains, between Tingis, Sala and Volubilis, while beyond, Moorish chieftains in the upland interior, and, of course, more distant desert tribes, maintained their independence, presumably by means of diplomatic relationships with Rome. The contact between Roman governors and the Baquates outside the province, including the occasional grant of citizenship to their chieftains, is one of the best epigraphically attested examples of such a relationship. In Mauretania Tingitana, then, rather than a drive for all out conquest of the peoples inhabiting two considerable mountain ranges (The Rif and the Atlas) and the pre-desert steppe, we see a kind of survival of the old system of diplomatic rather than direct control, which on most frontiers had passed away by the Julio-Claudian or Flavian periods. Relationships with these peoples were perhaps not so different from the ones that had prevailed before the

annexation of the old kingdom of Mauretania, from which Tingis had in any case been detached as a Roman city since the time of Augustus, alongside colonies at Zilis, Banasa and Babba.

Despite the use of the term 'Le limes de Tingitane' (Euzennat 1989), the garrison of the province in the high empire was in fact not arranged in a linear disposition, but seems rather to have been distributed for the protection of these individual cities, their attached agricultural zones, and the communications between them. The so-called 'Limes of the Sebou' may convincingly be seen as a road linking Sala, Thamusida, and Banasa, and passing thence to the provincial capital at Tingis. It would seal off nothing except a very narrow strip of coastline. The towers known along the road do not form a continuous cordon in the characteristic sense of a northwest European land frontier, and like other examples of 'individual' towers are better seen as having protected traffic along the route. The Volubilis 'limes' seems merely to be a concentration of installations intended to alert that individual city to the approach of raiders, and to safeguard communications. The well-known stretch of 'fossatum' at Sala likewise provides protection for that city and cannot be shown to have been part of a continuous linear system; it may plausibly be identified with the wall built around the town mentioned in the inscription set up in 144 in honour of Sulpicius Felix, a *praefectus equitum* stationed there. Euzennat (1989) has argued that rather than being the commander of a nearby cavalry unit (as previously thought), this man was a deputy of the governor, in charge of a detachment of troops with the special task of safeguarding the city and its immediate surroundings. The inscription records that he protected flocks from raids, intervened in financial disputes, protected citizens working in woods and fields outside the city, and built a wall for its protection. Another such *praefectus equitum* is attested at Sala. The attachment of such special officers to a city in this way underlines the specific

role of the military installations of Tingitana, which did not form a fortified border to the province.

7.4.2 Mauretania Caesariensis (Fig 29)

In the other part of the old client kingdom, in contrast, the province gradually expanded up to the edge of the pre-desert steppe in order to incorporate tribes within the system of direct imperial administration. The earliest distinctly linear arrangement of military installations occurs along the main east-west road through the province, along the Chélif valley, from Zarai via Auzia and Rapidum, to Albulae and the coast at Siga, rather short of Mauretania Tingitana. The military settlement of this line is epigraphically dated to the Trajanic-Hadrianic period.

Although this has sometimes been seen as a defended linear frontier, the Chélif road is better seen as 'a conveniently placed army of occupation' (Mann 1974, 528) distributed to safeguard a key route. The spacing of the known military sites, which tends to be between 30 and 50km, exposes the porosity of this system in comparison to such garrisoned military roads as the Stanegate in Britain, let alone intensively garrisoned preclusive frontiers. There is epigraphic evidence of towers on this road; at Auzia in the early 180s (ILS 396) new towers were being built and old ones rebuilt; we hear that at Albulae in 183-4 (CIL 8.22629) the province was defended by new towers. However, there is no evidence that these towers ever formed a continuous cordon, and it most likely that, as on the eastern model, they watched over traffic on the road or were clustered at particular points where movement - not necessarily of a militarily hostile nature - needed to be supervised. There is no evidence for continuous barriers of any kind in Caesariensis.

Under Severus a more southerly line was garrisoned, at the edge of the pre-desert plateau, for the most part south of the main coastal mountain ranges. This also has been interpreted as a defended frontier line (Rachet 1970; Benabou 1976), although like the more northerly, it displays none of the preclusive systems of towers or closely spaced fort systems that were a feature of defended frontier lines elsewhere. The fort spacing was in fact extremely wide, varying between 35 and 50km (Salama 1977, 586). Milestones give the road the appellation *nova praetentura*. *Praetentura* is not a term known to have been applied to defended frontier systems during the high empire, and there is no reason to give it anything other than its literal meaning: 'a new forward military disposition'. There is, in short, no reason for considering the *nova praetentura* any less a porous, non-preclusive system of forts than its predecessor in the Chélif valley. Salama (1977, 581), however, has noted the greater incidence of *alae* on the Severan line, an indication of its role in monitoring the nomads of the plateaux, whereas the early-second century road garrison, where more cohorts were provided, was more concerned with mountain tribes. Salama has also made the interesting point that the Severan system, covering a considerable distance with a very small garrison, seems to have been quickly and easily completed, suggesting that local peoples cooperated. Several far-flung outposts were provided in the pre-desert from the Antonine period onwards, reaching a peak in the Severan period. These are considered under Numidia, for it was the army of III Augusta, stationed there, which provided the garrisons for these outposts.

7.4.3 Numidia (Fig 29)

Although the western part of proconsular Africa, including the southern frontier area, did not become the separate province of Numidia until the third century, the name Numidia is used

throughout here to refer to the western military dispositions of the African province, in order to avoid confusion between the Roman use of the term Africa, and our modern use of it in the sense of the whole continent. In any case, since Gaius had removed the control of the military from the proconsul and placed it in the hands of his own legate, Numidia must rapidly have become a separate administrative entity. Although it remained in the control of the proconsul, the area of Tripolitania, which likewise became a separate province in the Severan period, will be treated in the same way.

In Numidia, to a greater extent than in Caesariensis, the army came to mediate relations between a prosperous coastal area with many cities, and a pre-desert zone populated by nomads. On the way to its final dispositions, the army surrounded and pacified the Aurès massif: III Augusta was based at Tebessa by c75, and the first fort at Lambaesis established shortly after in 81. By Hadrian's reign the legion was based at Lambaesis; meanwhile the Trajanic-Hadrianic period had seen an advance around the south side of the massif, via Ad Majores (built 104) to join the dispositions near Lambaesis at Thabunae. The fort at Gemellae, to the southwest of the Aurès, was established under Hadrian.

In the area of these last forts actual running barriers appeared, conventionally in the Hadrianic period. Known primarily from the air reconnaissance and ground exploration of Colonel J Baradez (1949), there is no close direct dating for the so-called *Fossatum Africae*, although pottery found by Baradez was taken to show a Hadrianic date; this could be supported by the known date of the associated fort at Gemellae, built 125-6. The *fossatum* falls into three principal sectors. That south of Gemellae runs for 60km and consists of a ditch fronting a mud-brick wall. Baradez, in an account clearly influenced by knowledge of Hadrian's Wall in Britain, argued for an extremely regular system of towers and gates, with a

tower placed half-way between each pair of gates, placed at mile-intervals. However, this regularity has been seriously doubted by more recent observers. There is the obvious difficulty of knowing how much of what can be seen on the ground belongs to the same period; it has been claimed that Baradez's gateways are difficult to detect on the ground, and that there are 'considerably more towers than Baradez's account suggests, some on or very close to the wall, others, sometimes in groups, a short distance from it' (Daniels 1987, 244).

The second sector runs for some 45km to the north and west of Mesarfelta, crossing the broken spurs of the Saharan Atlas. Baradez published it as a slightly smaller wall and ditch, of varying widths, than the Gemellae stretch. The barrier itself runs on more than one line at some points, showing successive replacements; it also seems clear that not all of the towers can be of the same period.

The third and least known element of the *fossatum* - known as Bou Taleb - apparently runs for some 140km around and through the Hodna mountains, south of the city of Sétif. Finally, much further to the southeast, lengths of clausura have been detected across gaps in the Jebel el Asker, north of Chott el Jerid, south of Capsa.

Here, then, are undoubtedly preclusive Roman military works of linear character. Is the *fossatum* to be seen as another example of the kind of secured border line at the extent of practical military occupation represented by the German and British land frontiers? This is certainly as close as Africa gets to a land-frontier on the European model, and as we shall see in a moment, there may be parallels to draw with certain early frontier developments in Germany. But there all resemblance stops. As barriers against the kind of ever-intensifying threat of infiltration and attack which we have suggested as the *raison d'être* for the land frontier

systems of Britain, Germany and Raetia, the Gemellae and Mesarfelta stretches of *fossatum* would have been ineffective; the discontinuous nature of the features would invite infiltration through the open areas. The lack of field-study of the third, Hodna Mountains, sector, renders assessment of its effectiveness as a surveillance device impossible.

It has, in fact, been convincingly suggested that these works were primarily concerned with the monitoring of movements of transhumant peoples between the pre-desert and the settled agricultural land around the cities of the province. Whittaker (1978) has argued for the probable symbiosis of agriculturalists and nomads in ancient north Africa, the former requiring labour from the latter at harvest time, while the nomads required access to summer pasture and supplies of grain. The relations between the sedentary peoples and nomads of the pre-desert are portrayed as having been extremely complex, with dominant groups and leaders on either side rising and falling in a cycle, and with either side liable to play the dominant role. The Roman military intervention perhaps altered the balance decisively in favour of the sedentary culture, not by excluding the nomads, but by carefully regulating their movements so that they arrived when their presence was useful, but not when it might be disruptive.

The sectors of *fossatum*, like the legionary establishment at Lambaesis, are closely associated with 'a great natural route linking the Sahara with the plateau of eastern Algeria and Tunisia... to which the nomadic tribes inhabiting the northern fringe of the Sahara could gain access by only a few, easily controlled, natural gaps' (Smith 1954, 20).

A role connected with transhumance of this kind along specific and predictable routes would help to explain the discontinuous nature of the *fossatum*. Furthermore, such a role is supported by the character of the terrain where the barriers were

provided. In the Mesarfelta sector, the *fossatum* is provided only to cover broken ground; at its northern termination there is an uncovered gap before the Hodna mountains begin. This takes the form of a flat, easily negotiated plain. If directed at raiders, we would expect the barrier to cover the easiest route of penetration. In fact it covers the sort of ground where transhumant herds could have been sneaked through without detection, and leaves unprotected the open plain where dust visible from afar would betray the presence of nomads and their herds and give the army plenty of time to police them. Similarly the Gemellae sector has been seen as preventing uncontrolled access into the usable land of the Oued Djedi, and working in conjunction with roads passing around each of its ends to funnel traffic from the south towards the centres of Thabudeos and Gemellae (Fentress 1979, 111). Finally, the deep valleys penetrating the Hodna mountains may have provided cover for delinquent nomads attempting to take their flocks, unauthorised, into the Sétif-Constantine area, and this may explain the curious barrier that possibly seals off those mountains.

In one way all this is reminiscent of the earliest development of a linear frontier in Upper Germany, where a watchtower system seems to have been provided first - in the Taunus - where the landscape was most afforested and intractable and therefore more prone to clandestine movement. However, in Upper Germany the problems of infiltration rapidly became serious on other sectors of the frontier, and the installations of the frontier were extended and augmented as part of a general scheme. Such a development never occurred in Numidia, where the *fossatum* always retained its discontinuous character, with the separate sectors directed at particular channels of movement. In any case, as has been noted (Fentress 1979, 112), we are dealing here with an obstacle much less formidable than the Wall in Britain with which comparisons have so often been drawn.

From the mid-second century, considerable long-distance military control running far southwest of the Gemellae sector becomes apparent. AD 148-9 saw the building of a fort at Medjedel, 150km beyond the *fossatum*, on the northern edge of the Oulad Nail mountains. In 174, 250km further west-south-west, a mixed force of cavalry is attested (CIL 8. 21567) at Agneb, although no fort site is known. Finally in the Severan period a network of forts and fortlets extended this whole system of far flung control, further still, seeing the establishment of Castellum Dimmidi to the south, and possibly sites up to 50km to the west, of Agneb.

It has been remarked (Daniels 1987, 253) that the small size of these outflung garrisons and the considerable intervals between them imply a self-confident Roman army facing little in the way of tribal opposition. It should also be apparent that this network of military sites in no way forms a linear system. Its purpose could not have been preclusive; rather it was intended to monitor and interfere with the movements of nomads from the northern edge of the Sahara, by controlling predictable routes or areas of passage, or to gather intelligence about the early stages of nomadic movements. A close parallel for this kind of activity is provided by the Severan outposts which controlled oases marking points of access to the settled areas of Arabia (7.3.1 above).

The army which provided these African outposts was projected from Numidia rather than Mauretania Caesariensis, in spite of the fact that the high plateau to the north of the outpost network would provide nomads with access to the latter province as much as the former. This, combined with the early occurrence of the running barriers we have discussed in the Gemellae-Lambaesis area (contrasted with their utter absence from Caesariensis) may lead us to suspect that the main tenor of transhumant movement was always in southwest-northeast direction, converging on the corridors of access to the

sedentary African province which the *fossatum* helped to control.

7.4.4 Tripolitania

There have been recent suggestions (Mattingly 1989, 137) of the presence of Roman forts in this area as early as the second century. This may begin to alter the picture that has long prevailed, of there being no serious military activity here before the third century. It has always seemed as if for the first two centuries AD the emporia had to fend for themselves. This was no doubt done simply by continuing age-old diplomatic contacts with the peoples of the interior. The strong position which had made these famous cities prosperous in the first place allowed the treaty relationships which must have early been established with the coastal and hinterland tribes to be maintained. Some have suspected that there was in any case less seasonal movement in Tripolitania (Daniels 1987, 254-5). Of course the discovery of forts of early date would not imply a linear frontier system. As elsewhere in Africa and the East, it is likely that such sites, where they exist, will have functioned primarily as road stations, controlled water-supplies, or provided garrison and protection for a particular area or population.

A change is seen in the Severan period, with the establishment of three important forts, projected south of the irrigated pre-desert zone to guard oases on routes leading north - Ghadames, Gheriat el-Garbia, and Bu-Ngem. These forts may reflect a deterioration in the diplomatic control of peoples in the interior, as well as a need to control access to the irrigated pre-desert, whose prosperity, based on olive production, had blossomed phenomenonally over the previous century. However, it is clear that the new forts in no way represent a linear system.

To the north of the agricultural zone, running along the Gebel escarpment which rose from the arid plain forming the immediate hinterland of the three emporia, we hear for the first time in the Antonine Itinerary of a *limes Tripolitanus*: *Item iter quod limitem Tripolitanum per Turrem Tamalleni a Tacapes Lepti Magna ducit.* A list of road stations follows. As Isaac (1988) has shown, the meaning here of the word *limes* is 'boundary'. It cannot mean 'road' in this context, as the road (*iter*) is separately specified as following the *limes*.

On the other hand, *limes* here can hardly mean an artificially demarcated boundary, or the boundary of the province or empire, for most of the zone of agricultural prosperity lay beyond the road; two roads with early-third century milestones led across and from the '*limes*' into the area of the Wadi Sofeggin. What linear frontier would have excluded this area? The tortuous course taken by the *limes*, as it doubles on itself to go via Turris Tamalleni upon leaving Gabes on the coast, should also demonstrate its impracticability as any kind of linear frontier. The simplest explanation would be that in following the escarpment the road followed the edge of the coastal plain that was thought of as the area of the three cities; in other words at this time (probably the early third century) the road was seen as following the *limes* of the Tripolis, rather than the frontier of the whole new province of Tripolitania. Isaac (1988, 129) cites a similar example from the Itinerary where *limes* refers to the boundary of an area within Italy - Campania - where it obviously cannot denote a military frontier or a provincial boundary. In the late-Roman period of course, the term *limes* takes on a new meaning in Tripolitania, in the sense of a fortified zone.

7.4.5 Cyrenaica and Egypt

Under the Principate Cyrenaica possessed only a tiny provincial garrison. There is no question of a linear frontier. Individual coastal cities looked to their own protection, no doubt relying on long established relationships with the inhabitants of the northern edge of the desert. Also as in Tripolitania, the region was, in contrast to its earlier experience, to receive a considerable military upgrading in the late-Roman period, when some kind of really formidable threat from the south had emerged (Mann 1974, 525; Daniels 1987, 232-3).

The garrison of Egypt as it had developed by the second century consisted of a legion at Alexandria - presumably for the purpose of internal control - and a number of auxiliary units in the Nile valley, which do not seem to have been concerned with preventing inroads from the south; rather their role was one of internal policing, of the kind described so vividly for a later period in the letters of Abinnaeus, Prefect of the *ala V Praelectorum*, at Dionysias in Egypt, in the reign of Constantius II (Bell et al. 1962).

In addition, in the Eastern desert there was a network of garrisoned roads running from the Red Sea coast to the Nile. Besides the way-stations, some forts in the network were connected with the safeguarding of mining activities. In the case of the more southerly roads, their east-west orientation and possession of military installations has sometimes resulted in the interpretation of one or more of them as fortified linear frontiers against attackers from the south.

However, these roads, like those we considered on the Arabian and Syrian frontiers, were really the product of an incoming trade in luxury goods and spices from Ethiopia, southern Arabia and India. The ports of entry for these goods were established

before the Roman conquest of Egypt, and by necessity they were linked to the Nile by communications routes, which simply received military stations in the Roman period for the protection of traffic on the roads. The nature of these stations is betrayed by their possession of cisterns and external enclosures for the overnight security of animal trains.

These roads, like the Trajanic Stanegate in Britain, should not be confused with linear frontier systems. They do not possess the characteristic watchtower cordons and closely spaced installations of such systems. On one road, the one running from Leucos Limen to Phoenicon, intervisible watchtowers occur in the central sector of the road, placed high on the spurs through which it twists. This is typical extra-supervision for traffic in broken country, just as in the central sector of the Stanegate; in any case, this road lies far to the north of a further road with stations, that running from Berenice to Phoenicon, where the spacing of the forts is much more akin to that on the *via nova Traiana* in Arabia than on any true defended frontier. Also, because this road clearly aims for the same point on the Nile as all the others, and therefore runs northwest-southeast, it is forced to cover about twice the distance that a defensive line drawn east-west from coast to Nile would have required.

In short, although raids from nomadic tribes in the south are attested, there was insufficient threat to make the Roman army do more that post stations to safeguard internal communications and to protect the luxury traffic from the Red Sea. It was not considered necessary to garrison a border zone for the protection of the province as a whole against inroads, still less to construct any kind of linear or preclusive system for this purpose.

7.4.6 Africa in general

The absence of continuous frontier systems in the African provinces must be set against a background of relatively very small scale military involvement in this frontier area during the Principate. C M Daniels (1987, 235-6) has shown how strikingly small was the army that covered the vast combined area of Tingitana, Caesariensis, Africa, Cyrenaica and Egypt, in comparison to the large garrisons of individual provinces in Britain, Upper Germany or on the Danube. Although after the revolt of Tacfarinas, the African provinces, particularly Mauretania, did see incursions, notably the Moorish war under Pius, the garrison never had to be permanently augmented before the late Roman period.

The picture that emerges of the Roman army in Africa has points of similarity and contrast to the way in which the army operated on the desert frontiers of Arabia and Syria. The role of the army in watching areas of access to farmed areas, and securing routes of communication and trade, is reminiscent of the East. However, a difference lay in the fact that in parts of Africa, a simple frontier at the desert edge was not always achieved. Not only were nomadic peoples left outside the area of military control, as in the East, but so were various areas, such as the Rif and Middle Atlas in Mauretania Tingitana, which might well have been incorporated had Rome felt the need. In Caesariensis numerous hill-peoples maintained a state of semi-independence.

Africa in general displays some survival of the old diplomatic methods of controlling and treating with peoples without recourse to direct occupation. The Roman military seem merely to have monitored and interfered in relations which had been in progress long before the arrival of the army. In Caeariensis and Numidia, internal affairs always remained very much the concern of the army: they were assigning farmland among the

Musulamii within Numidia in 198 (Millar 1981, 175); the army was routinely employed in the surveillance and policing of periodic markets held by tribes within the African province (Shaw 1981, 56). Beyond the cities and their surrounding lands, tribal structures and relationships were allowed to persist, subject to regulation. This, of course, may well have been true of the northwestern provinces as well; the difference was that in Africa this seems to have been the only task facing the army. In Britain and Germany, in contrast, on top of these activities the army had to form a preclusive frontier against an external threat.

The pattern of Roman advance in Africa during the Principate was never really one of progressive conquest, ultimately succeeding or failing, as in Spain or Britain. Rather the provincial armies go only as far as they need to go to maintain stable relations between the coastal cities, the agriculturalists and the nomads of the interior, and to dampen down whatever tendencies to instability - nomadic raids, internal power struggles - that did occur. From the size of the army concerned, these threats were never really formidable under the high empire.

In Numidia and Caesariensis a more extensive pre-desert area than in the east allowed the army to get away from the cities to a much greater extent and to base itself further into the interior. The more gradual progression from coastal city zone to desert also meant that there were greater and more complex tribal movements to be monitored. As a result the pattern of military occupation - and the types of individual military installation - sometimes resemble those of the northwestern provinces more than the Eastern desert frontier. Even so, the army in the African provinces seems always to be reacting to an existing state of affairs, which it is incapable of radically altering. They watched known corridors of transhumant movement, and occasionally (as with the *fossatum*),

directed it by means of physical barriers; but given the evident predictability and low-key nature of the 'threat', there was no need for a general system of border defence, such as a continuous preclusive frontier. Indeed, it was argued above (6.2; 6.3) that such systems, where they do occur, only in northwest Europe, indicate a desire to prevent rather than regulate movement, except at a very few sanctioned crossing places.

The African adventures of the late Republic and early empire, such as Cornelius Balbus' visit to the Garamantes, revealed that there was no formidable threat lurking beyond the coastal city zone. Africa itself, however troublesome the nomadic raiders from the desert edge might be, was cut off from Europe, and, since the defeat of Carthage, posed no threat to the empire (as did Parthia in the East) or to Italy itself (as did the northern barbarians). Thus whether for offensive or defensive reasons, there was no great people to wage war against, as had Augustus in Germany. There was no spur to attempted conquest of the type whose failure led to the creation of artificial linear frontiers in the northwestern provinces, and the small African army contented itself with chasing small scale raiders and regulating an economic relationship between the pre-desert and the city zone. It is only with the increase in size of the African army in the late-Roman period that we see that more dangerous opponents had emerged.

EPILOGUE

The last chapter has shown that the organisation of the Roman army in the frontier provinces of the principate was of diverse character. For all of the detailed research into individual frontier systems, there has been little attempt to classify types of system, or to compare military organisation in one area in close detail to that in another. Instead, modern research has proceeded on the implicit assumption that the military frontiers of the empire are varying examples of the same kind of thing. They may differ in emphasis and speciality, but essentially one is comparing like with like. So, over the years, the same terms - particularly the word *limes* - have tended to be applied to all areas. Luttwak has attempted to see a military strategy lying behind the frontiers, seeing them as an integrated system of deterrence and defence. Those that criticise this approach, notably Isaac, have also tended to view frontier installations as all of a kind. A view is derived from a study of the army in the East, of frontier organisation as non-defensive, lacking the concept of a military border, and concerned with the internal policing of civilians and aggressive wars against foreign peoples. This view is extended indiscriminately to the other frontiers of the empire, even though their installations have obvious physical differences, possessing in some cases artificial barriers. These 'have had a misleading effect'.

Some Roman frontier systems were organised in a linear fashion, and others were not. Land frontiers were always marked not merely by a linear system of forts, but also by a chain of smaller installations and later a continuous barrier. Continuous land frontiers of this type are confined to the provinces of Britain, Upper Germany, Raetia and Dacia. These

frontier lines form a tiny part of the overall circumference of the empire. These provinces also include the most famous and most intensively studied of frontiers. As a result, archaeologists have often in the past tried to interpret other, quite different frontiers, in the same light.

This study has attempted to define the characteristics of these localised systems, the only truly linear land frontiers of the empire, and to ask how they developed, what was their purpose, and what significance they hold for our understanding of the operations of the Romans on their frontiers. None of these questions can be answered with certainty, and others, faced with the same evidence, will arrive at quite different conclusions. But it is suggested that the comparative study of this particular frontier type undertaken above points consistently towards certain tendencies.

The earliest land-frontiers of northwest Europe may have originated at the same time and in response to the same emergency on the Danube. The very earliest watchtower systems did not always close off the whole frontier. In some places the system was soon extended to the whole frontier; in others this was a much slower process. Everywhere towers were only built when it was decreed that there would be no more advance. They acknowledged a permanence of the shape of the administered province and military area. Thus the watchtower frontier only gradually formed in second century Raetia as the army moved towards optimum control of fertile areas north of the Danube. In Britain, during a generation of war between *c*90 and *c*120, there was no linear frontier, as the situation was not considered resolved or permanent. At certain times it is a mistake to interpret dispositions of forts along roads as linear frontiers, even in the handful of 'linear frontier' provinces in question.

After their first invention by the army as a security system for particularly infiltrated areas, the general extension of the linear systems to the whole land frontier represented not a gradual process of coalescence or inertia, but a decision. The frontiers were chosen: they did not 'congeal'. In most cases the early watchtower systems formed the first formal delineation of the land-boundary of a province. Thus the origins of the military installations, and the origin of the *limes* of the province, were in fact indistinguishable. This is not to say the *limes* would have been the Roman term for such a frontier system. But it is notable that the only provinces with land boundaries described as *limites* in the first and second centuries are those with artificial linear barriers: the two concepts may have eventually become blurred.

Eventually the towers were supplemented by running barriers and military units themselves became more closely linked to the frontier line. Many of the installations were converted into stone. This was a gradual process during the second century on the Continent. In Britain a varying amount of success in maintaining control up to the Scottish Highland edge resulted in two frontiers being built *a novo* and occupied at different times on the northern and southern Isthmus.

Frontier lines were not lightly built and abandoned, or moved backward and forwards. The British frontiers may give that impression, but in fact denote a consistent drive for influence, direct control if possible, up to the Highland line. The only continental lines to be abandoned were those affected by the precautionary decision to complete the closure of the Upper German-Raetian frontier in the mid-Antonine period. Otherwise, once chosen, frontier lines remained permanent until the loss of the entire continental land-frontier in the 260s. Furthermore, the development of the Continental land-frontier was not unco-ordinated and irrational. Apart from very limited sectors (such as that near Lorch) which were provided at the

very end to tie together the system, the frontier as a whole shows a rational approach to the control of desirable areas beyond Rhine and Danube. There is evidence for co-ordination between the Upper German and Raetian commands. The frontier progressed steadily to completion. A similar consistency of aim can be discerned in Britain, but this was constantly frustrated by the removal of troops from the province. For all that the development of the frontier was not blatantly irrational, there was no underlying grand strategy. The frontiers clearly developed at different rates in different places, and co-ordination between them was precipitated by events, rather than being the driving force in the first place.

These linear frontier systems did not function as defensive lines. But a study of the varying densities of installation from sector to sector suggests that they were threatened by something of varying intensity. The predominant function of these security cordons and fences in all their stages of elaboration was that of border surveillance, against infiltrators or raiders. It has been said that the Upper German palisade 'could only prevent infiltration in a situation where nobody dared to attack Roman troops, even if they consisted merely of four men on a tower' (Isaac 1990, 415). But the fact that much greater concentrations of Roman troops lay on certain sectors than others shows that perceived threats existed, and the steady escalation of provision on certain parts of the frontier suggests that the threats materialised in some form. If a minimum barrier was all that was ever required to deter infiltration, why were the frontiers so consistently elaborated and augmented? It is also an inescapable fact that this type of frontier is found in association with the most intense troop concentrations of the empire. The more formidable the barrier, the greater the concentration of troops associated with it, as so clearly seen in the case of Hadrian's Wall.

There were friendly frontiers, with few troops, as in much of Raetia; there were remote frontiers, such as the Odenwald, where low grade troops watched out for small scale infiltration. If the intensity of installations is relied upon, the populous frontiers of the Wetterau in Upper Germany and north Britain were the most endangered.

Some would argue that it is simplistic to deduce the roles of military installations from their sites, and that a host of now undetectable factors may have played a part in their siting; that their functions may have varied over time. But here we are dealing in most cases with sites intimately linked to a linear system, not forts or fortlets in a looser arrangement as seen in the Eastern provinces. The western frontier forts and fortlets originated most often with, or later than, the frontier lines themselves. Like the frontier lines they were usually permanent institutions, not lightly abandoned or moved around, and often garrisoned by the same kind of soldiers for at least century and a half on end. Arguably, it is futile to construct a model of the role of such a permanently based garrison, but that can only be said to be a very negative conclusion.

There is no evidence that the linear frontier systems were used to regulate trade or civilian movement in and out of the empire. Although seized upon by those anxious to discount the 'defensive border line' concept, the notion that these systems were designed to regulate traffic is as unfounded and unlikely as the view that they were used for static defence. The milecastles which formed gates through Hadrian's Wall are best seen as points of access to the Wall and its towers, or as fortlets for the accommodation of soldiers, closely comparable to examples in Upper Germany. There were perhaps very few places where Hadrian's Wall could be crossed by civilians. The same might be true of Upper Germany. There is evidence for more such crossing places in Raetia, but they seem to occur in

an area with very few military installations. This kind of passage could be supervised by very few soldiers (as in Africa, or the East). Troops were concentrated where trouble was expected. Scrutiny of the frontier systems of Africa and the East, where continuous linear systems never existed, suggests that the Roman army in these areas regulated movement and safeguarded its communications, without actually trying to exclude people. If we can suggest why linear frontiers were not necessary in the East, we might begin to understand why such elaborate systems were established in the West. The contrast suggests that in northern Europe the army was dealing with a larger population, elements of which had to be excluded from entering the occupied area at unpredictable points. Looked at as a whole, the western frontiers appear as much less liberal or porous systems than in Africa or the East.

The movements between Hadrianic and Antonine Walls in Britain have been described as holding nothing more than antiquarian interest. This is a point of view that assumes that the Roman army came and went as it pleased, but failed to press consistently forward through confusion and apathy. It is closely related to the view which sees the movements of such frontiers as most closely influenced by external political considerations. But the above study has emphasised that there is no evidence that the Antonine occupation of Scotland consisted of more than a single period of activity. It represented a failed attempt to return to the traditional policy of occupying Scotland up to the Highland line. Once Antonine Scotland is seen as a single episode, it begins to look as if the practical difficulty of occupation on the ground, combined with emergencies on the Continent, actually prevented Roman advance in Britain.

The frontier lines have a significance in that they show the limits of practical military occupation at a given time. Their various progresses to completion, and their omission in certain

cases, indicate that Rome faced more formidable low-intensity resistance in some areas than others. It is common to criticise the empire for having frontiers at all, for spending so much effort on the elaborate linear systems rather than going out to address the problem. But in the end, we must ask why, if such barriers and walls had no more than rhetorical significance, they are only found in very limited areas of north and west Europe. This limited distribution surely suggests that they fulfilled a practical purpose there, related to the populations through whose lands the frontiers arbitrarily cut.

The permanence of the general line of these frontiers, once chosen (or continually striven for in Britain) also suggests their sheer practicality as a mark of territory that could be safely controlled and occupied. To accept the opposite view, that the lines represent, irrationally, the stopping points where various aggressive campaigns ground to a halt, we would have to find much more evidence of them being moved or displaced, or displaying an utter lack of co-ordination. But there is little such evidence. Once Domitian's armies in Britain and beyond the Rhine were forced to call a halt, in general terms there is only permanence and consistency in the elaboration of the linear frontiers. Therefore they provide invaluable evidence for the relations between the Roman empire and the peoples beyond, for they show what was considered practical to administer with the resources available in any given theatre.

Some commentators would still protest: this is to see the Romans thinking in rational and defensive terms, for which there is no evidence in the literary sources. The army did not follow a consistent policy, but acted at the whim of the emperor and his advisers, in pursuit of his glory. It may well be that this was the way that the individuals who produced the source material thought. This is undoubtedly how they wanted

things to happen. It does not mean that they always succeeded. Inbetween wars of aggression dictated by the emperor, the army on the ground was left with the task of practical occupation and anti-infiltration work. One significance of the linear frontier systems is their demonstration that the area in which this could be achieved remained constant, in spite of the attempts of individuals to carry out glorious conquest. In any case, beyond the Rhine and Danube there were few such initiatives after Augustus. The idea that the military machine was directed at the emperor's glory and not in any way defensive is one which works well for the East but looks less convincing when applied to northwest Europe. To put it another way: it is obvious that Domitian would have liked the glory of unlimited conquest beyond the Rhine. That does not mean that the army would necessarily have been capable of progressing much further than it had when the emergency of the Danube halted the Chattan war. Even if it had progressed, it might not have been practical to administer the new area permanently. Augustus' reign illustrates this: what was desired, and what could be permanently achieved, were different things.

Against the scale of the whole history of the empire, the linear land frontiers enclosed small areas beyond the great rivers which were not held for very long. After the failure of the first century military initiatives, we seem to see a short-lived holding operation (severely compromised in Britain by troop withdrawal). The enclosed areas became increasingly beleaguered, and in the end the policed security lines of the Continent were useless in stemming the deluge of the third century. Only Hadrian's Wall in Britain survived, but as an anachronism from a previous age, still garrisoned in the late fourth century by old-fashioned units that had been based there for over two hundred years.

As we look back upon the artificial linear frontiers from the perspective of the twentieth century, there is still no

agreement about why the Roman empire stopped expanding when and where it did. Traditionally it has been seen as a matter of rational choice on the part of the Romans. More recently explanations have stressed confusion, apathy or sheer chance in the location of the frontiers. It is true that the artificial frontiers of northern Europe do not have a neat or rationally planned overall apearance. Each was chosen in its given area when the Roman state had reached the limits of the direct power allowed to it by the available military resources. Once chosen, it was the manpower equation which decided their histories, and rarely chance. In this sense the Romans can be said to have had their frontiers chosen for them, and the various lines existed for the duration of what, until the Marcomannic wars, seemed a golden age. It was lauded as such by Aelius Aristides, with specific reference to the artificial linear systems and the ideal arrangements which they formed. In retrospect, the period may be seen as an Indian summer during which peoples outside the empire had put a check upon the power of the Romans, but could still, albeit to an ever decreasing extent, be excluded by simple obstacles and lines of demarcation.

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APPENDIX

A Schedule of forts and fortlets on the Upper German and Raetian frontiers in their final state

The following schedule, running from the Rhine to the Danube, lists the known sites on the Continental land frontier, in order to illustrate the varying densities of minor installations and to provide the basic evidence on which the average densities and spacings given in Chapter 4 are based. There are obvious difficulties in knowing whether sites were all held at the same time. Timber fortlets belonging to an early period are generally bracketed, to exclude them from the spacing, as are fort sites that lie some distance behind the frontier. It is assumed that most stone fortlets were in use by about 200, by which time several forts had also been added or enlarged.

The first column lists forts and the Strecke numbers. The second column gives the position, by watchtower reference, of fortlets. The third column gives the distance between installations, and the fourth names the fortlets. A final column gives the approximate size and the building material of the fortlet.

SCHEDULE OF SITES ON UPPER GERMAN AND RAETIAN LAND FRONTIER

THE RHINE				
	1/1		Rheinbrohl	stone 0.07ha
		7		
	1/14		Forsthofweg	timber 0.07ha
		7		
NIEDERBIEBER				
		7		
(HEDDESDORF, BENDORF, Heimbach)				
	1/41		Anhausen	I 0.17ha II 0.07ha
		12		
	1/63		Fehrbach	stone 0.07ha
		4.5		
	1/71		Hillscheid	I 0.16ha II 0.03ha
		6		
ARZBACH (NIEDERBERG) EMS				
		6		
Strecke 2				
		0.5		
	2/0		Auf der Schanz	stone 0.45ha
		6		
	2/7		Becheln	stone 0.05ha
		7		
HUNZEL			(Marienfels - early)	
		3		
	2/21-25		>>An der Ecke bei Pohl<<	
		3		

	2/27		Pfarrhofen	stone 0.15ha
		5		
HOLZHAUSEN				
		4.5		
	2/43		Auf dem Dörsterberg	I timber 0.05ha II stone III stone 0.03ha
		4.5		
	(2/48		Auf dem Pohl bei Kemel	I timber 0.07ha II timber 0.13ha late C2)
		4.5		
KEMEL				
Strecke 3				
		9		
			Adolfseck	stone 0.04ha
		9		
ZUGMANTEL				
		8		
	3/29		(Eichelgarten	0.25ha: ephemeral)
		1.5		
ALTEBURG-HEFTRICH				
		0.5		
				(Kk before numerus fort)
		3.5		
	3/39		Maisel	stone 0.07ha midC2?
		4		
FELDBERG				

Strecke 3-4

	4			
3/53		Altes Jagdhaus	stone	0.06ha
	1.8			
3/57		Heidenstock	stone	0.04ha
	4.25			
SAALBURG				
	1.75			
3/69		Lochmühle	stone	0.04ha
	5.5			

Strecke 4

(4/8 early kk)

KAPERSBURG				
	0.75			
(4/11		Ockstädter Wald	timber	0.2ha)
	2			
4/15		Kaisergrube	I timber	
			II stone	0.07ha
	2.2			
4/19		Am Eichkopf	timber	0.25ha
	1			
LANGENHAIN				
	5.5			
4/28-30		Hunnenkirchhof	I timber	0.06ha
			II stone	0.12ha: mid-C2?
	4			
BUTZBACH		Degerfeld	I timber	0.10ha

				II stone	0.30ha
		3			
	4/40		Dicker Wald	stone late?	0.0380ha
		4			
	4/46-7		Holzheimer Unterwald	stone	0.036ha
		3			
	4/50		Hainhaus bei Grüningen	stone	0.3ha
		5			
ARNSBURG					
		5.25			
	4/66		Langsdorf	stone	0.10ha
		2			
	4/68		Feldheimer Wald	stone	0.10ha
		3			
INHEIDEN					
		1.30			
	4/75		Auf dem Wingertsberg	stone	
		1.25			
	4/77		Auf dem Massohl	stone	
		1.75			
	4/79		Unter-Widdersheim (Postulated)		
		3.75			
ECHZELL	4/80		Haselhecke	stone	0.40ha:
		3			
	4/89		Auf dem Lochberg	stone	0.04ha
		4			
	4/94		Staden	stone	0.40ha
		4			
OBER-FLORSTADT					
		1.65			

4/95 Stammheim stone 0.03ha

3

ALTENSTADT

3

4/102 Auf dem Buchkopf 0.01ha

4.50

Strecke 5

MARKÖBEL

6

5/7 Langendiebach I timber?
II stone 0.40ha

1.5

RÜCKINGEN

4.75

5/13 Neuwirtshaus timber 0.10ha
(not late?)

3.25

GROSS-KROTZENBURG

Strecke 6

HAINSTADT

SELIGENSTADT

STOCKSTADT

NIEDERNBERG

OBERNBURG

WÖRTH

TRENNFURT

MILTENBERG-ALTSTADT

MILTENBERG-OST

Strecke 10

WÖRTH

2.5

SECKMAUERN

3

LÜTZELBACH

1.7

10/9 Windlücke stone 0.017ha

3

HAINHAUS BEI VIELBRUNN

5.7

EULBACH

5.5

WÜRZBERG

6.7

HASELBACH

2

10/34 Zwing stone 0.03ha

		2		
	10/36		Seitzenbuche	stone 0.04ha
		2		
SCHLOSSAU				
		4		
OBERSCHEIDENTAL				
		4.3		
	10/48		Robern	stone 0.04ha
		2.7		
	10/52		Trienz	stone 0.20ha
		7		
NECKARURKEN - WEST				
NECKARBURKEN - OST				
		14.5		
			Uferkastell Duttenberg	
(Strecke 11 - The Neckar)				

MILTENBERG-OST				
		10		
Strecke 7				
	7/24		Haselburg	stone 0.20ha
		7.25		
WALLDURN				
		3.6		
	(7/48		An der Altheimer Stasse	stone 0.20ha)
		0.4		
	8/1		Hönehaus	stone 0.20ha
		3.10		
Strecke 8				
	8/7		Rinschheim	stone 0.30ha

		10		
OSTERBURKEN				
		13		
Strecke 9				
JAGSTHAUSEN				
		3.4		
	9/11		Sindringen	
		5.75		
WESTERNBACH				
		3.25		
ÖHRINGEN (Rendelkastell)				
		13.25		
MAINHARDT			Mainhardt-Ost	0.05ha
		3		
	9/76		Hankertsmühle	stone 0.03ha
		8.5		
MURRHARDT				
		6		
	9/117		Ebnisee	stone 0.04ha
		4.45		
	9/129		Rötelsee	stone 0.03ha
		1.5		
WELZHEIM - WEST				
WELZHEIM - OST				
		10		
Strecke 12				
LORCH				
		4.75		

Raetia

At beginning of Raetian Wall:

SCHIRENHOF	12/22	Klein-Deinbach	stone 0.06ha
		(Freimühle	stone 0.30ha) (with baths)
	6		
	12/33	Hintere Orthalde	stone 0.02ha
UNTERBÖBINGEN			
	12		
AALEN			
	9		
BUCH			
	12/81	Dalkingen ('Limestor')	
	13		
HALHEIM			
	13		

Strecke 13

RUFFENHOFEN

11.5

DAMBACH

(GNOTZHEIM) 12.5

Strecke 14

GUNZENHAUSEN

1.75

	14/6		Auf dem Hinteren Schlossbuck	stone	0.04ha - late
THEILENHOFEN					
		5			
	14/26		bei Gündersbach	stone	0.03ha
(WEISSENBURG)					
		3			
ELLINGEN					
		4.5			
	14/38		possible Kk		
OBERHOCHSTATT					
			(Harlach)		
		4			
	14/49		Raitenbuch	stone	0.03ha
		4.5			
	14/55		Petersbuch	stone	0.04ha
	(14/66		Biebig - not Roman?)		
		8.75			
			Hegelohe		0.04ha
(PFÜNZ)					
		7			
BÖHMING					
		13.5			
	15/18		Gussgraben	stone	0.04ha
		3.5			
	15/23		am Hinteren See-Berg		
		2			
			postulated Schambachtal site		
		16			
THE DANUBE					

A note on the illustrations

The illustrations are placed separately from the text in the belief that the reader will want to consult them on more than one occasion. A series of general maps (A-E) provides such information as the location of German rivers and geographical features frequently mentioned in the text, and the location of the *Strecken* into which the German frontier is divided.

The detailed maps (Figs 1-21) are intended to illustrate graphically the development of the northwestern frontiers, superimposed upon the topographical background. They have been uniformly produced at a scale of 1:1,000,000 with north at the top. The two grades of stipple denote land above 200m and 500m. The numbers refer to the same site from map to map, except that the British sites are numbered separately. There are, therefore two lists of sites: one for the British maps, and one for the German-Raetian maps. Some sites are left unnumbered if identified on the previous map in a series. Roads are only shown if described in the text.

The conventions used on the detailed maps are:

Legionary fortress ■

Auxiliary fort (1.30ha or over) ■

Small fort (0.50ha-1.30ha) ■

Large fortlet (0.10ha-0.50ha) ▲

Fortlet (up to 0.10ha) ▲

Linear frontier installations - - - - - - - - - - - -

Road ———— Postulated — — — — — —

Town ●

An open symbol denotes possible occupation of a site

Figures 22-29 illustrate some points made in the text and provide some maps to illustrate the location of places named in the brief descriptions in Chapter 7 of frontiers outside northwest Europe.

A. Location of the artificial linear frontiers.

Artificial frontiers sketched in red. Frontier Provinces:

br Britian
gi Lower Germany
gs Upper Germany
r Raetia
n Noricum
p Pannonia
dc Dacia
ms Upper Moesia
mi Lower Moesia
col Colchis
arm Armenia
ca Cappadocia
os Osrhoene
mes Mesopotamia
sy Syria
a Arabia
e Egypt
c Cyrenaica
t Tripolitania
a Africa
nm Numidia
mc Mauretania Caesariensis
mt Mauretania Tingitana

br
gi
gs
r
n
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dc
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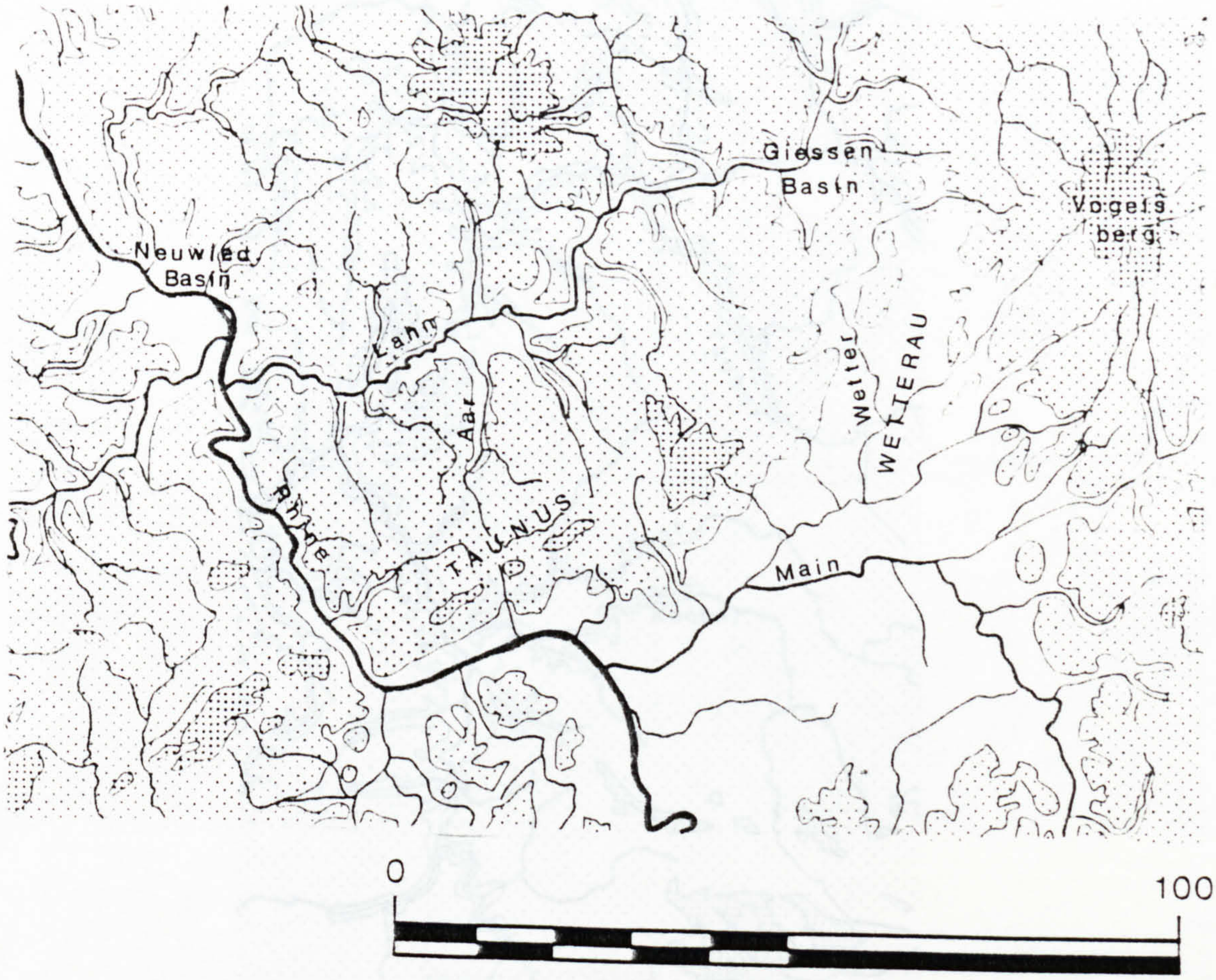
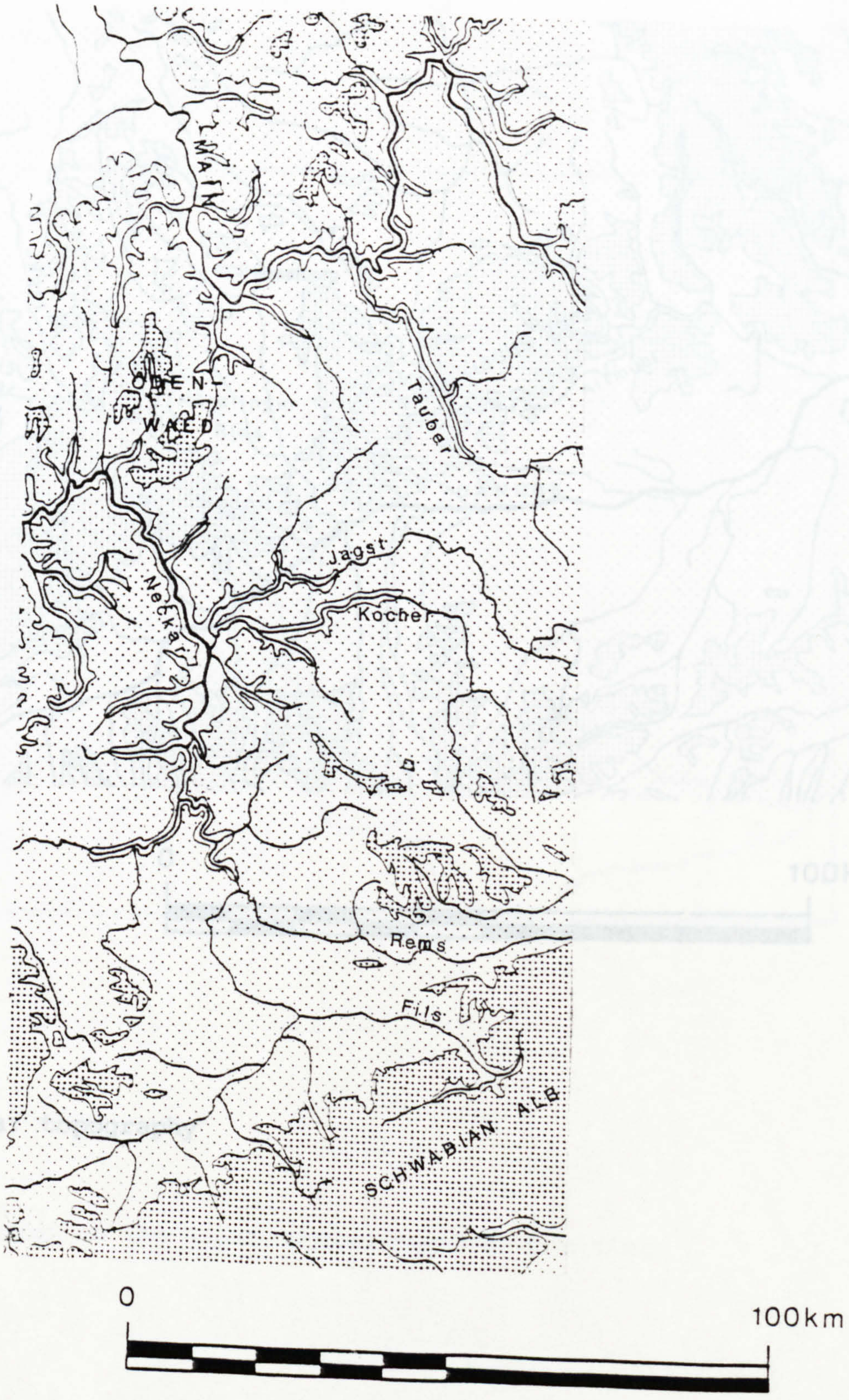
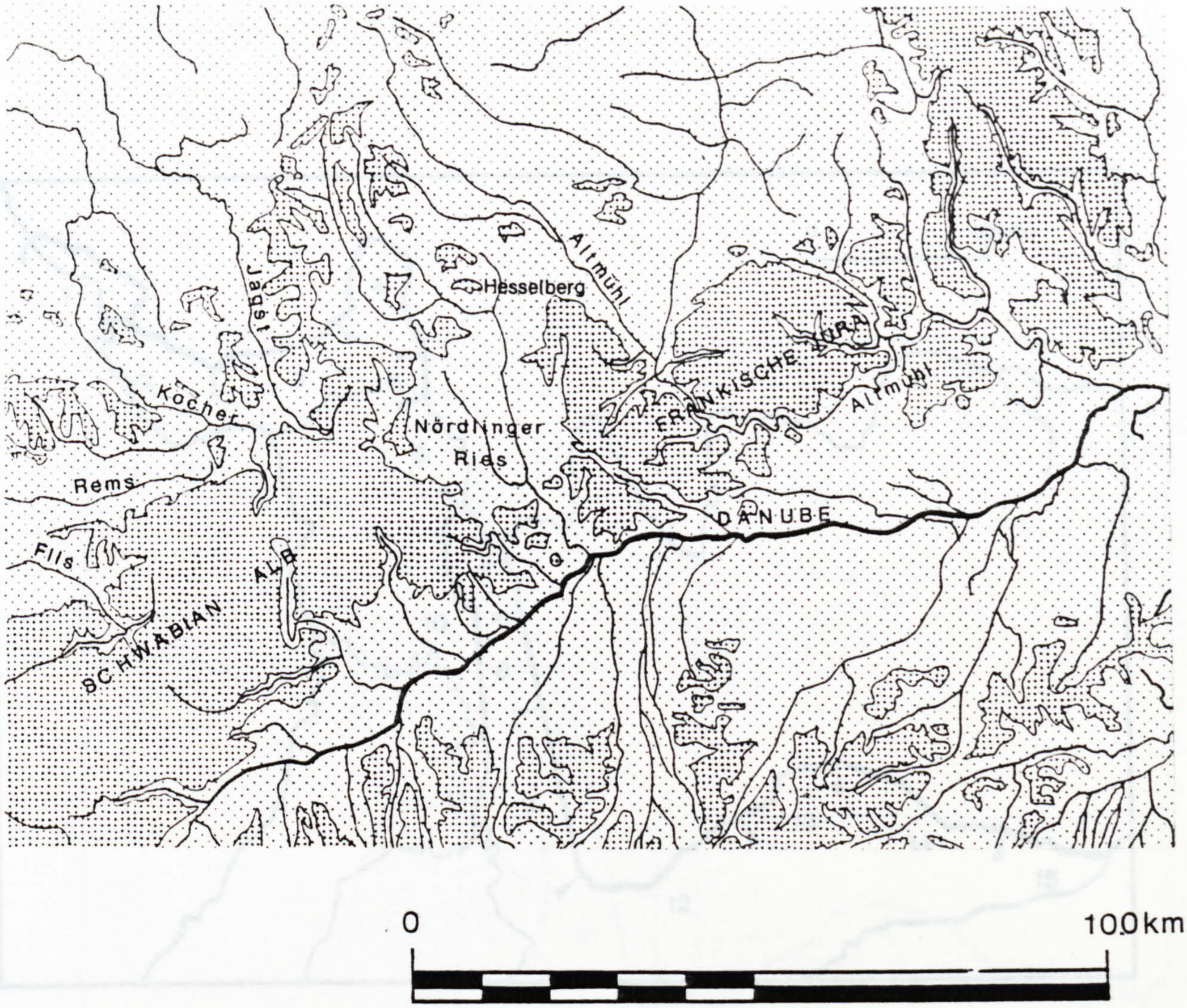


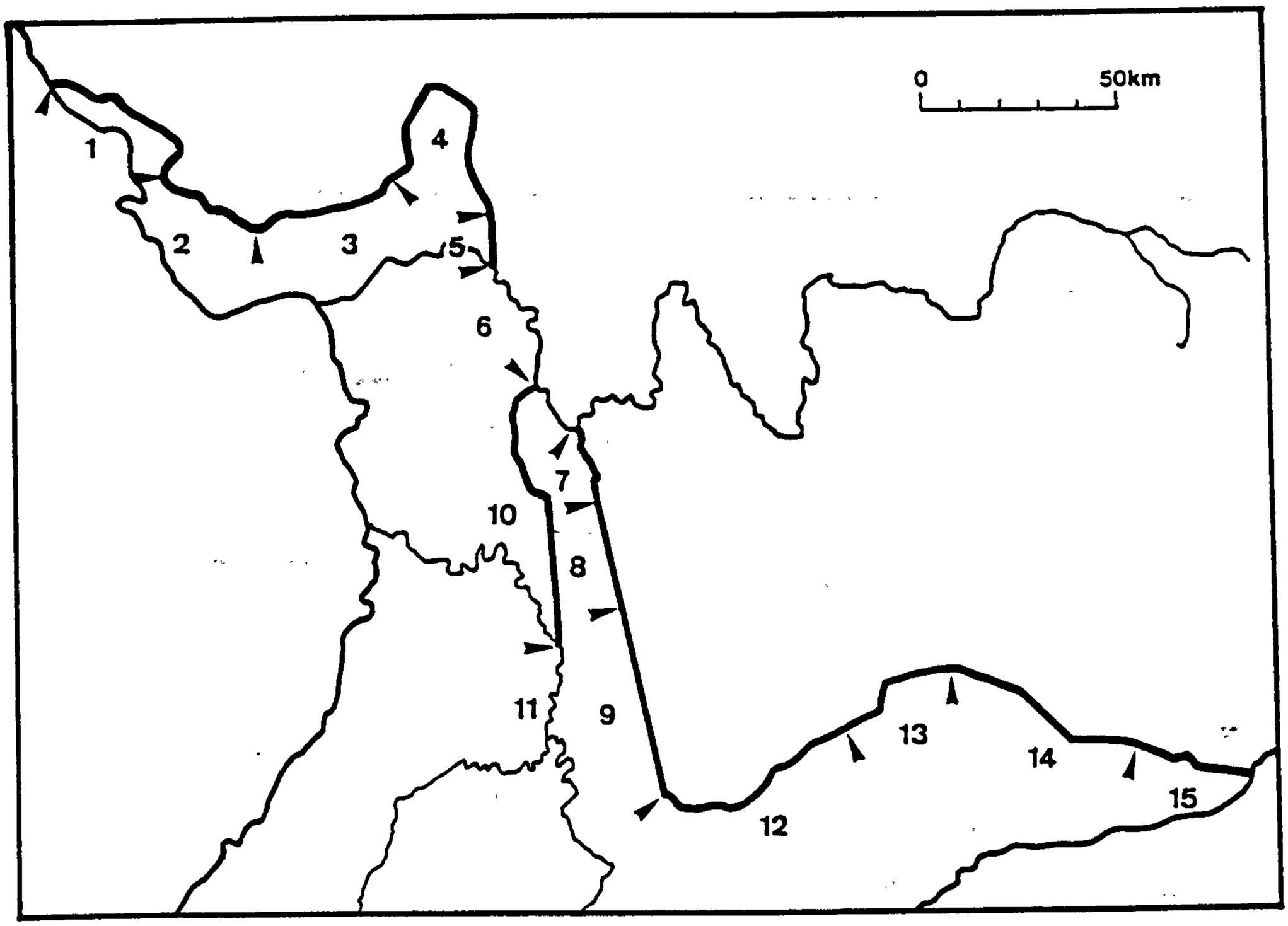
B. Upper Germany between the Rhine and the Main: topography



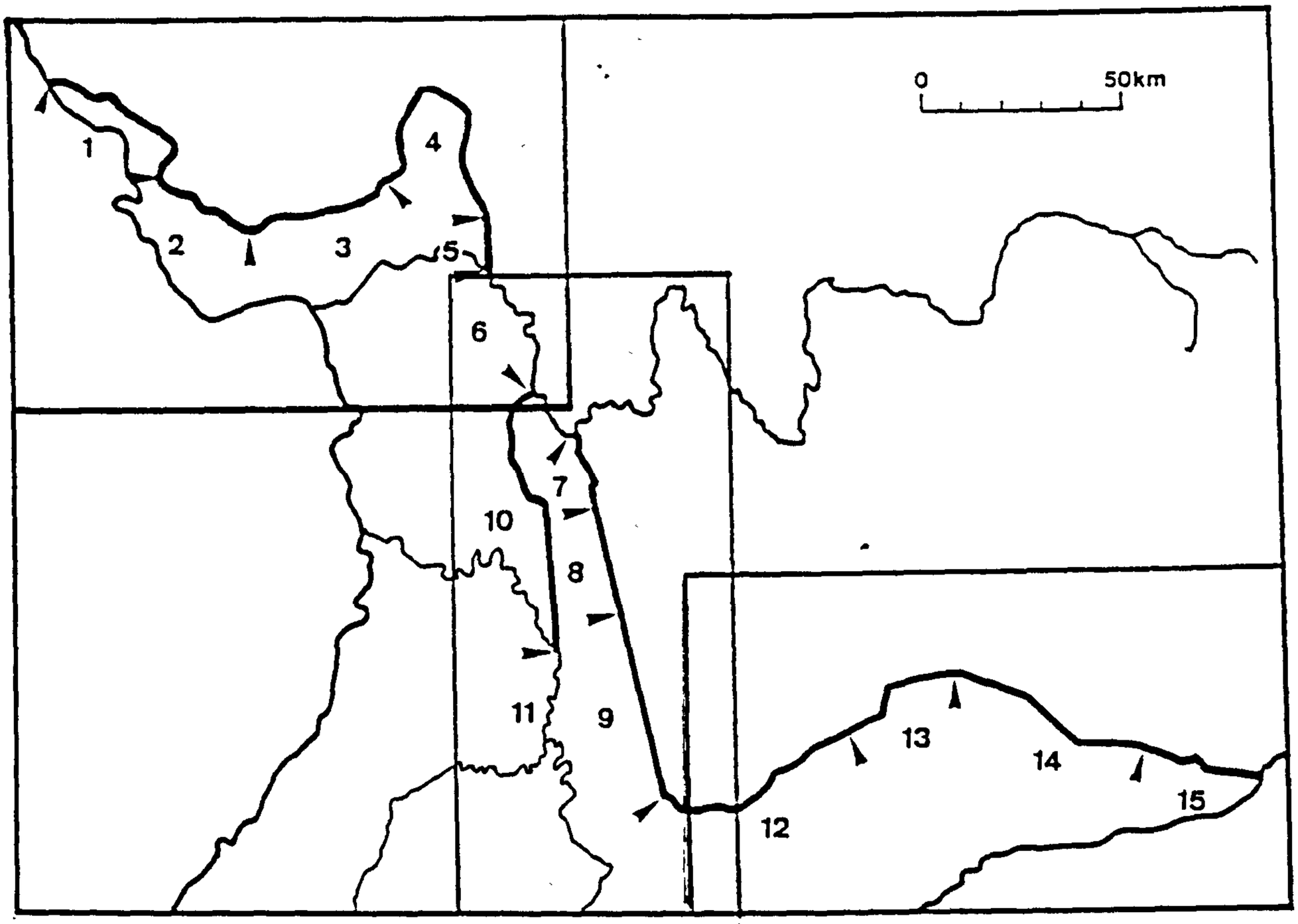
C. Upper Germany south of the Main: topography



D. Raetia: topography



E. The *Strecken* on the Upper German-Raetian frontier

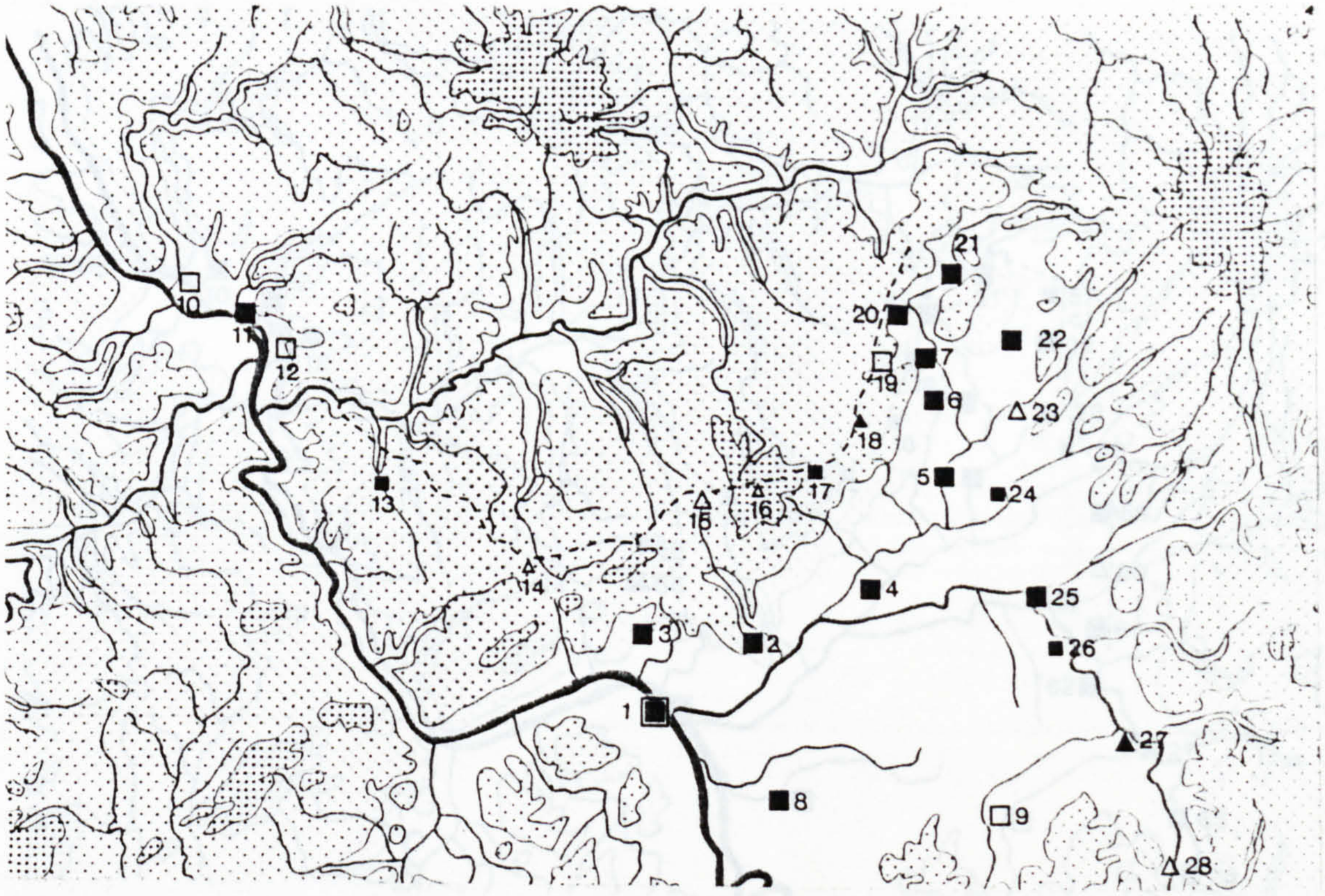


F. Location of the detailed maps in relation to the Upper German-Raetian *Strecken*

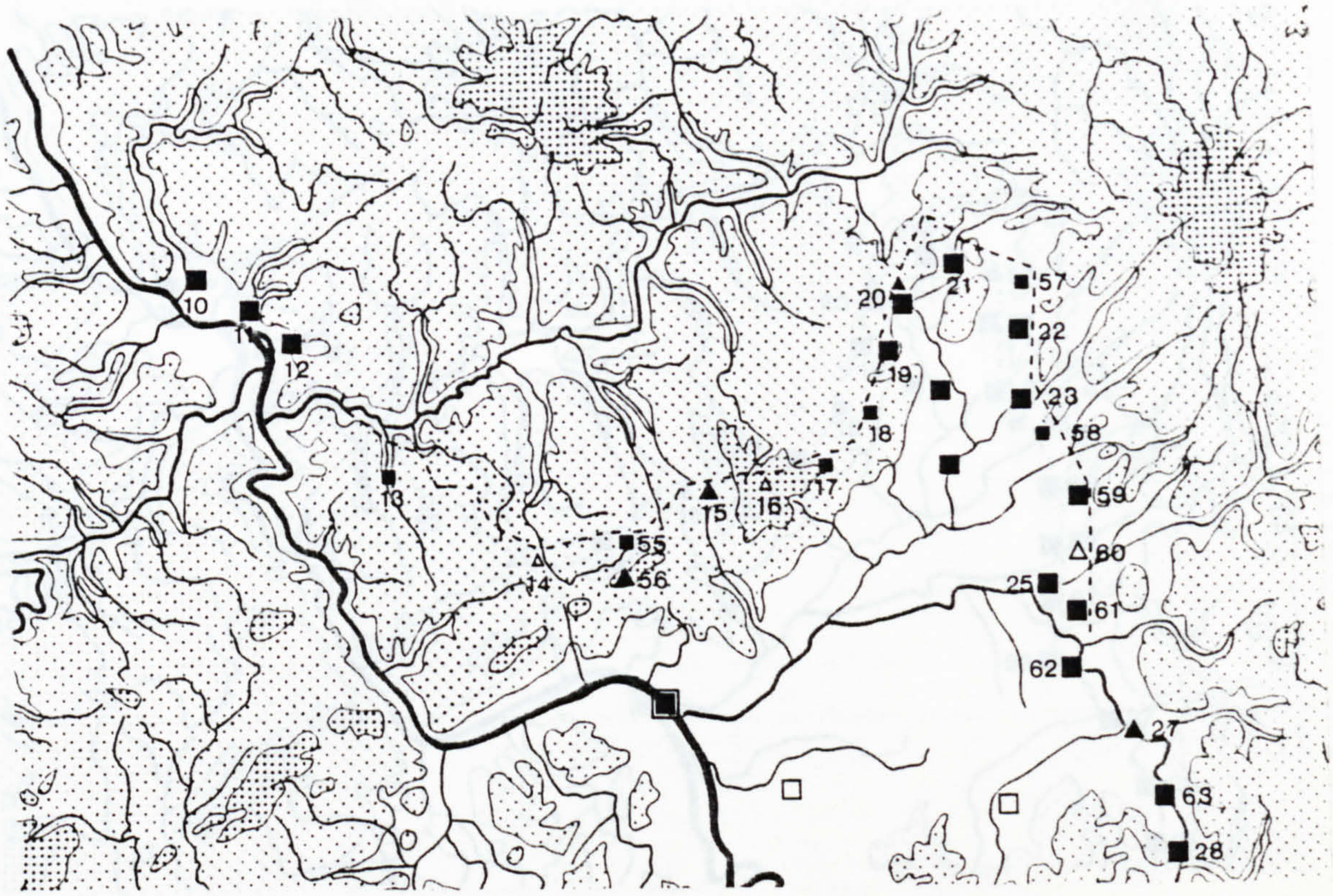
Sites on the Upper German and Raetian maps:

1	Mainz
2	Hofheim
3	Wiesbaden
4	Heddernheim
5	Okarben
6	Friedberg
7	Bad Nauheim
8	Gross-Gerau
9	Postulated fort at Dieburg
10	Heddesdorf
11	Bendorf
12	Niederberg
13	Marienfels
14	Kemel
15	Heftrich
16	Feldberg
17	Saalburg
18	Kapersburg and Ockstädter Wald
19	Langenhain
20	Butzbach
21	Arnsburg
22	Echzell
23	Ober-Florstadt
24	Heldenbergen
25	Hanau-Salisberg
26	Hainstadt
27	Stockstadt
28	Obernburg
29	Wörth
30	Wimpfen
31	Böckingen
32	Walheim
33	Benningen
34	Stuttgart-Canstatt
35	Köngen
36	Dettingen-unter-Teck
37	Rottenburg
38	Gomadingen
39	Donstetten
40	Urspring
41	Günzburg
42	Faimingen
43	Burghöfe
44	Oberstimm
45	Eining
46	Kösching
47	Pfünz
48	Weissenburg
49	Gnotzheim
50	Munningen
51	Oberdorf
52	Nördlingen
53	Heidenheim
54	Augsburg

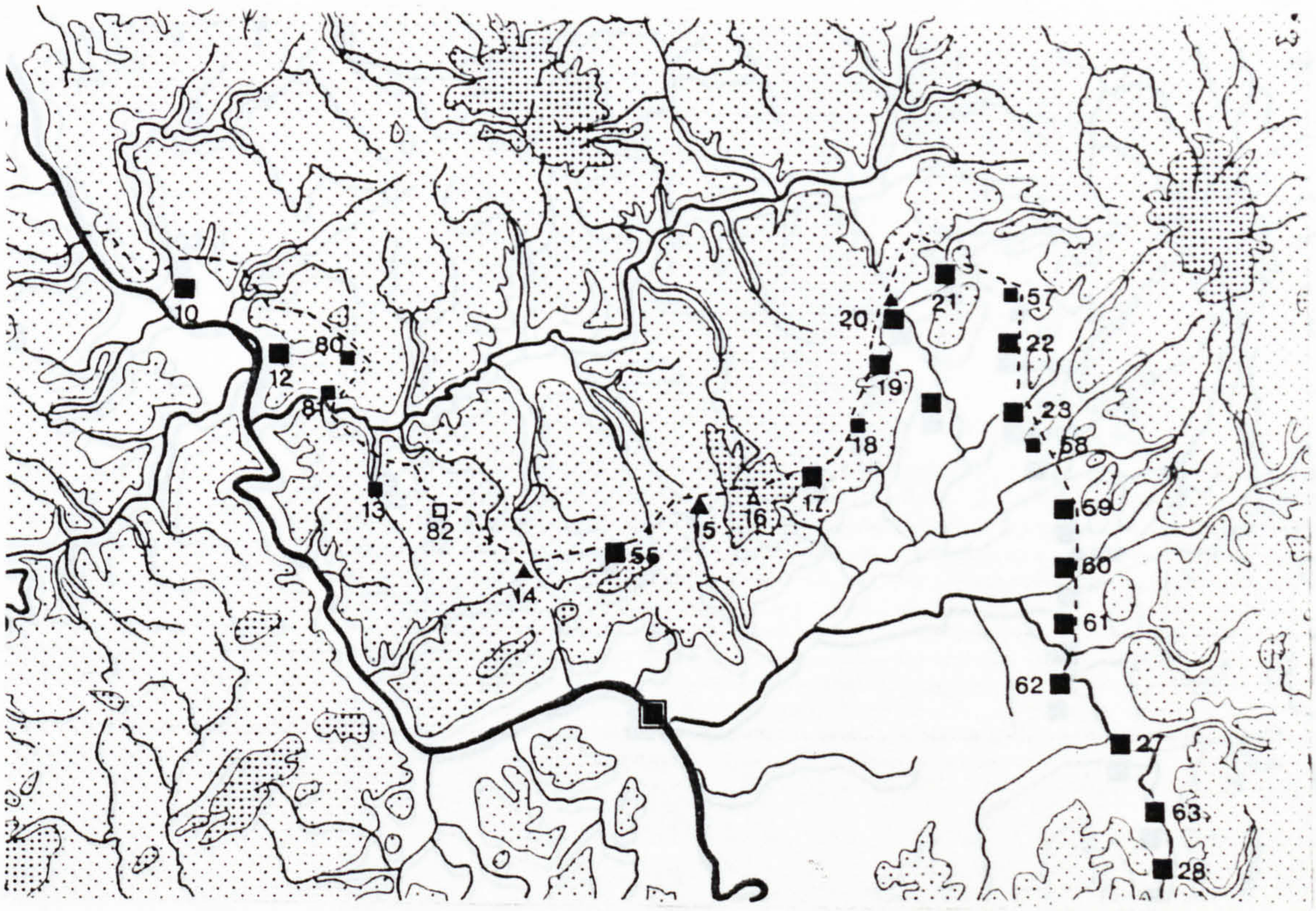
55	Zugmantel
56	Heidekringen
57	Inheiden
58	Altenstadt
59	Marköbel
60	Rückingen
61	Gross-Krotzenburg
62	Seligenstadt
63	Niedernberg
64	Seckmauern
65	Lützelbach
66	Vielbrunn
67	Eulbach
68	Würzberg
69	Hesselbach
70	Schlossau
71	Oberscheidental
72	Neckarburken
73	Eislingen-Salach
74	Deggingen
75	Pförring
76	Unterschwanigen
77	Gunzenhausen
78	Theilenhofen
79	Ellingen
80	Arzbach
81	Ems
82	Holzhausen
83	Ruffenhofen
84	Dambach
85	Halheim
86	Buch
87	Aalen
88	Unterböbingen
89	Schirenhof
90	Trennfurt
91	Miltenberg-Altstadt
92	Miltenberg-Ost
93	Walldürn
94	Osterburken
95	Jagsthausen
96	Öhringen
97	Mainhardt
98	Murrhardt
99	Welzheim
100	Lorch
101	Böhming
102	Niederbieber
103	Hunzel
104	Degerfeld fortlet
105	Hainhaus fortlet
106	Haselhecke fortlet
107	Staden fortlet
108	Langendiebach fortlet



1. Upper Germany between the Rhine and the Main c90-c100

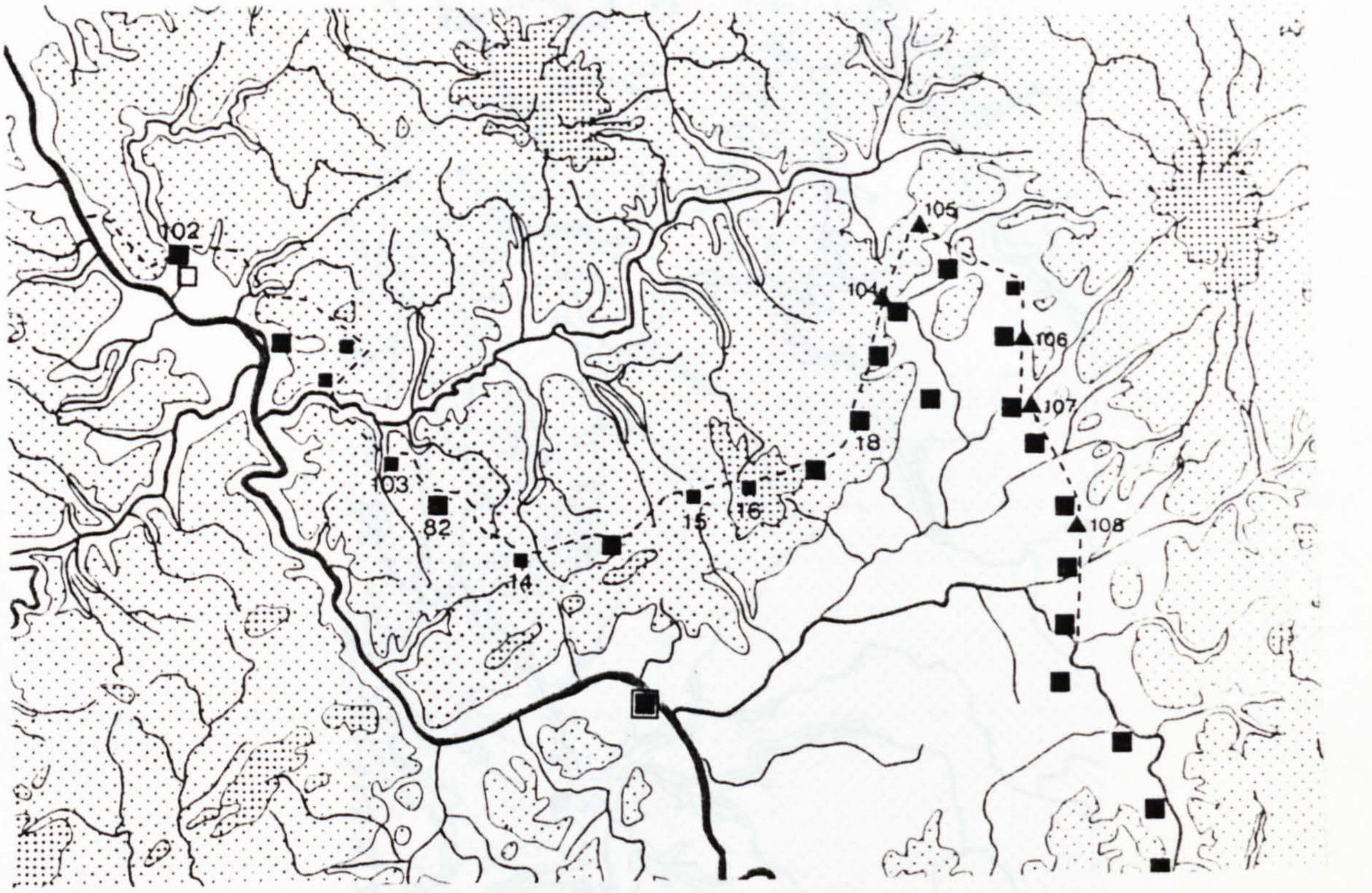


2. Upper Germany between the Rhine and the Main c100-c110

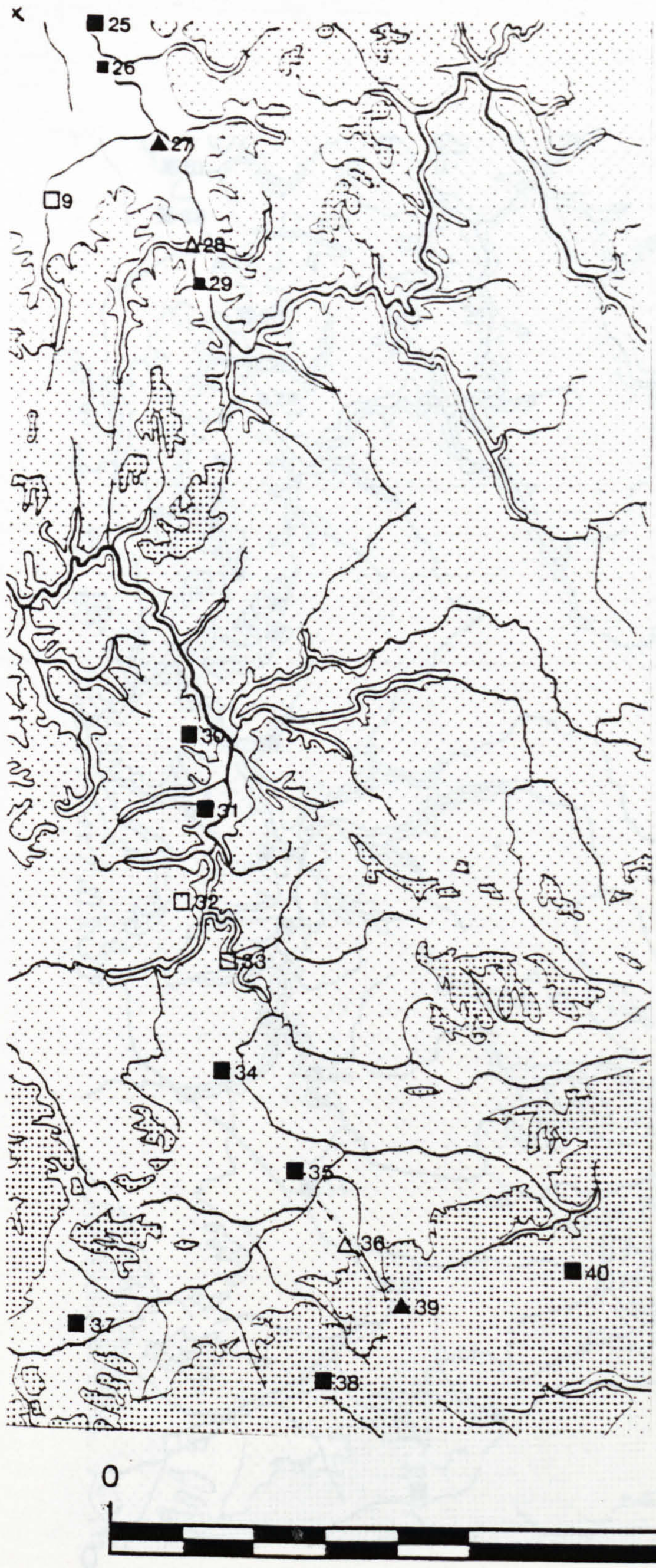


0 100km

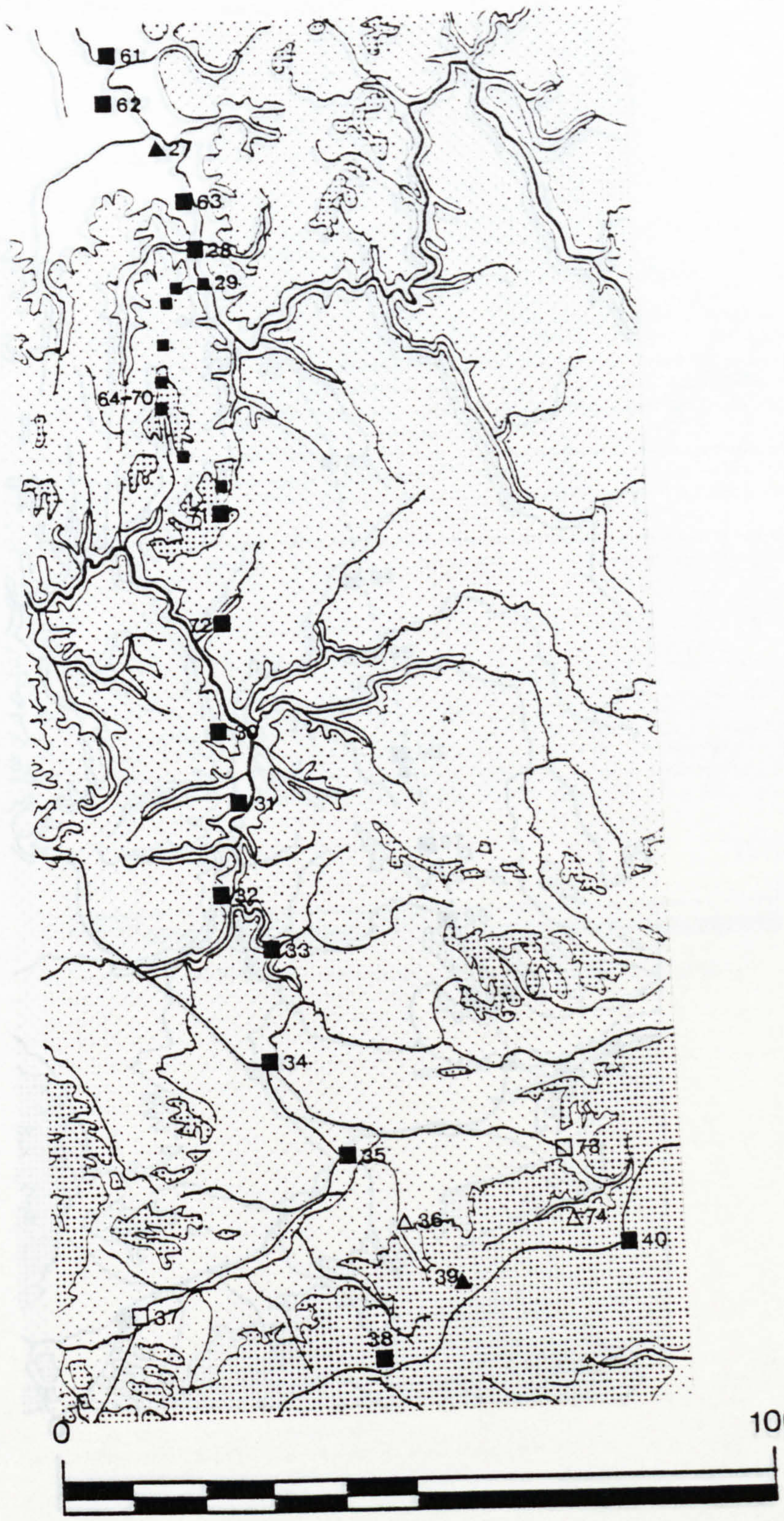
3. Upper Germany between the Rhine and the Main c110-c140



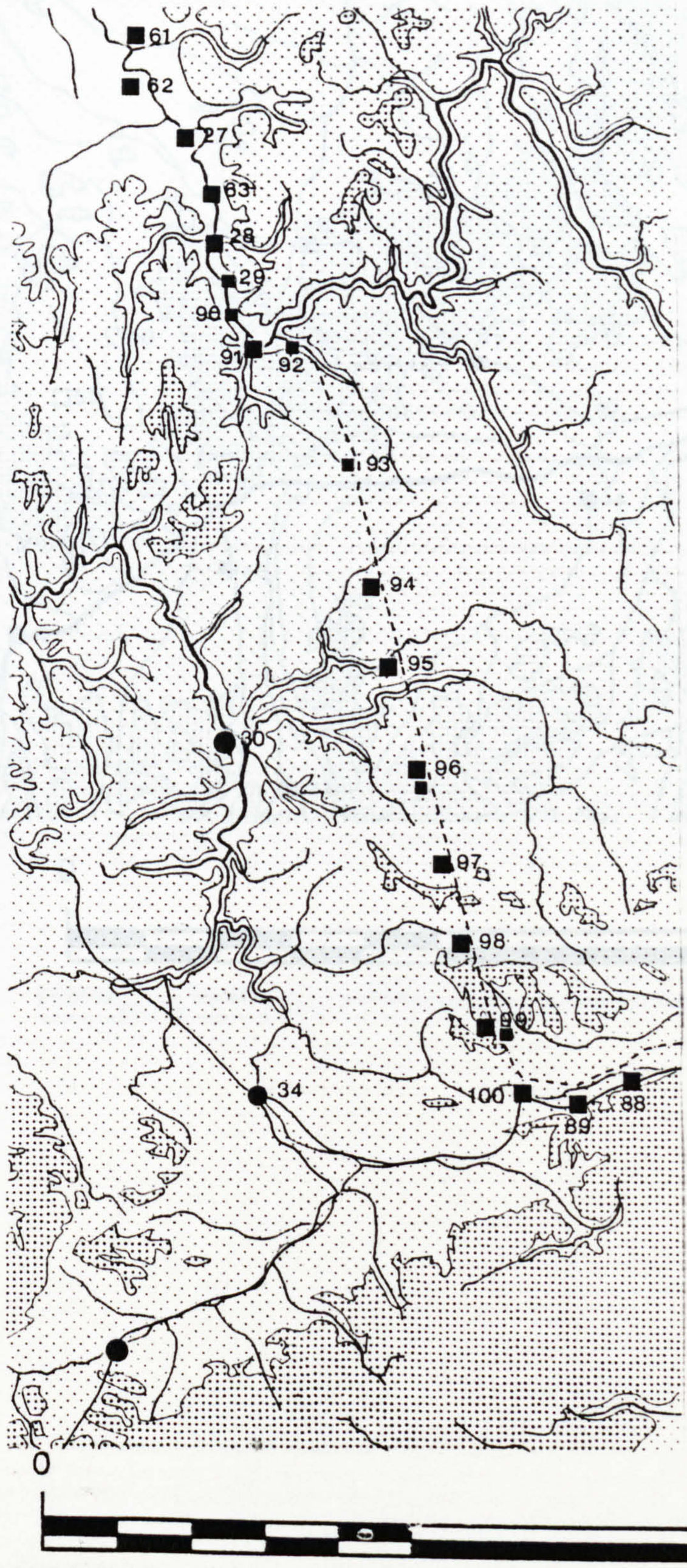
4. Upper Germany between the Rhine and the Main by *c*200



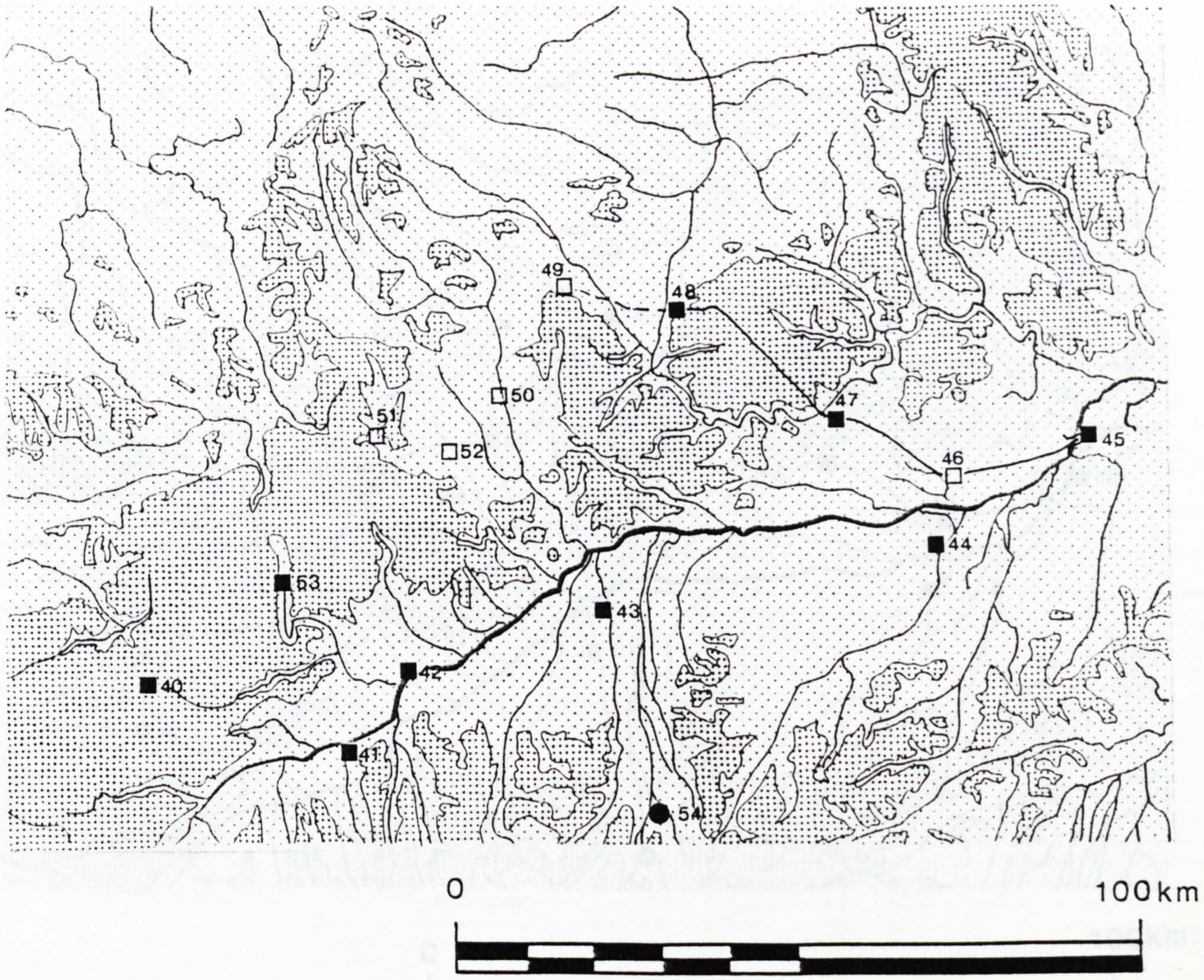
5. Upper Germany south of the Main c90-c100



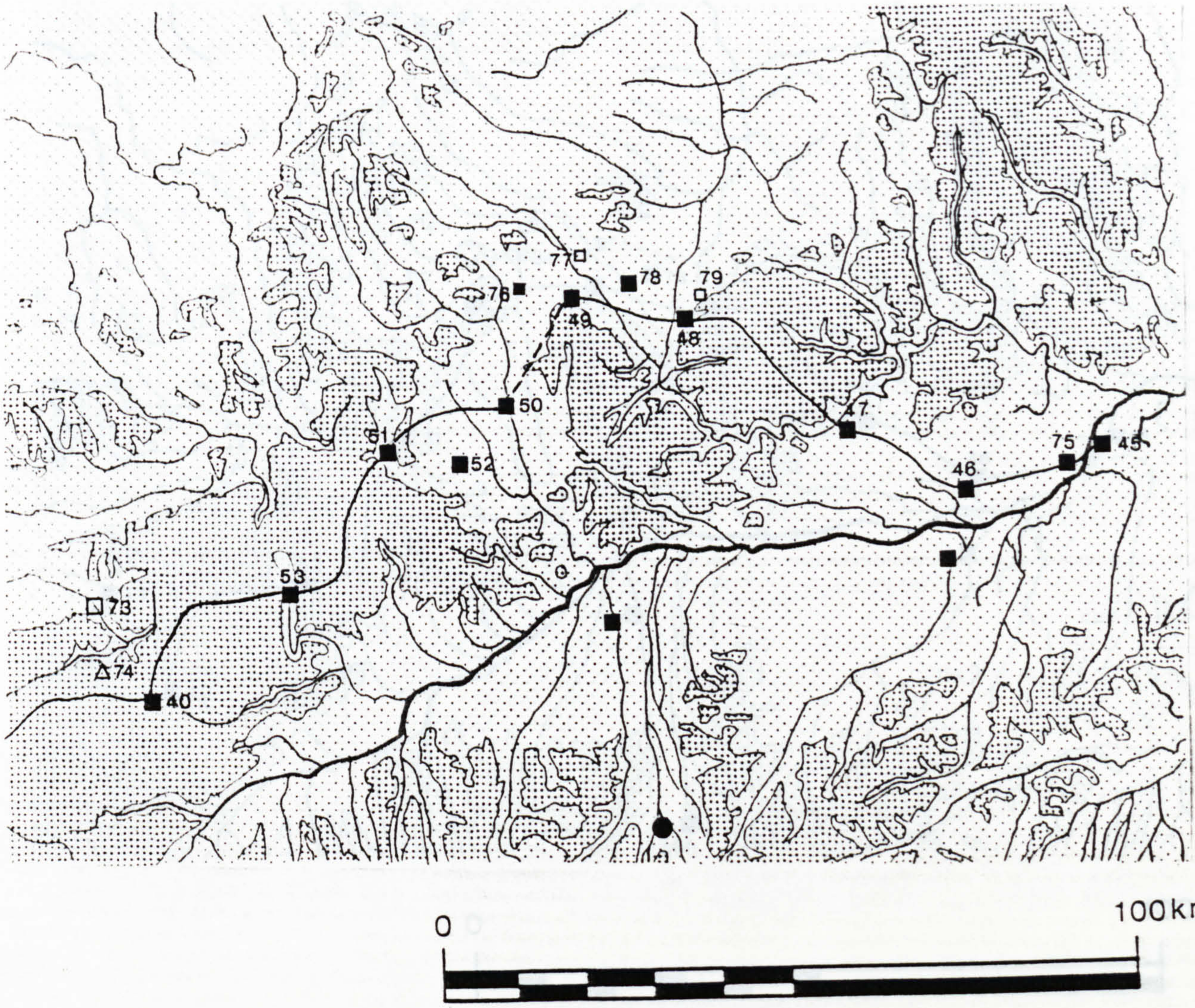
6. Upper Germany south of the Main c100-c110



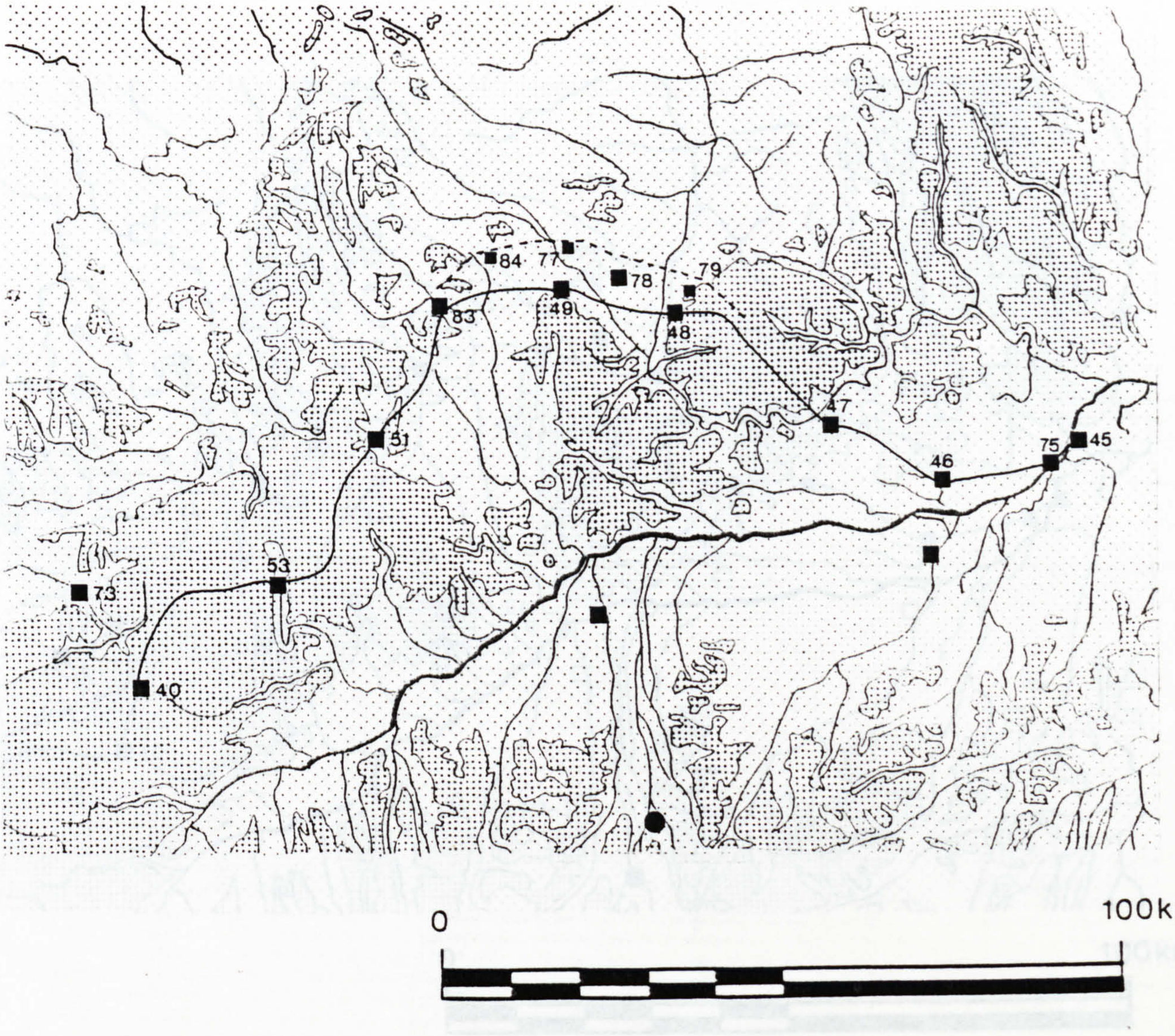
7. Upper Germany south of the Main by c160



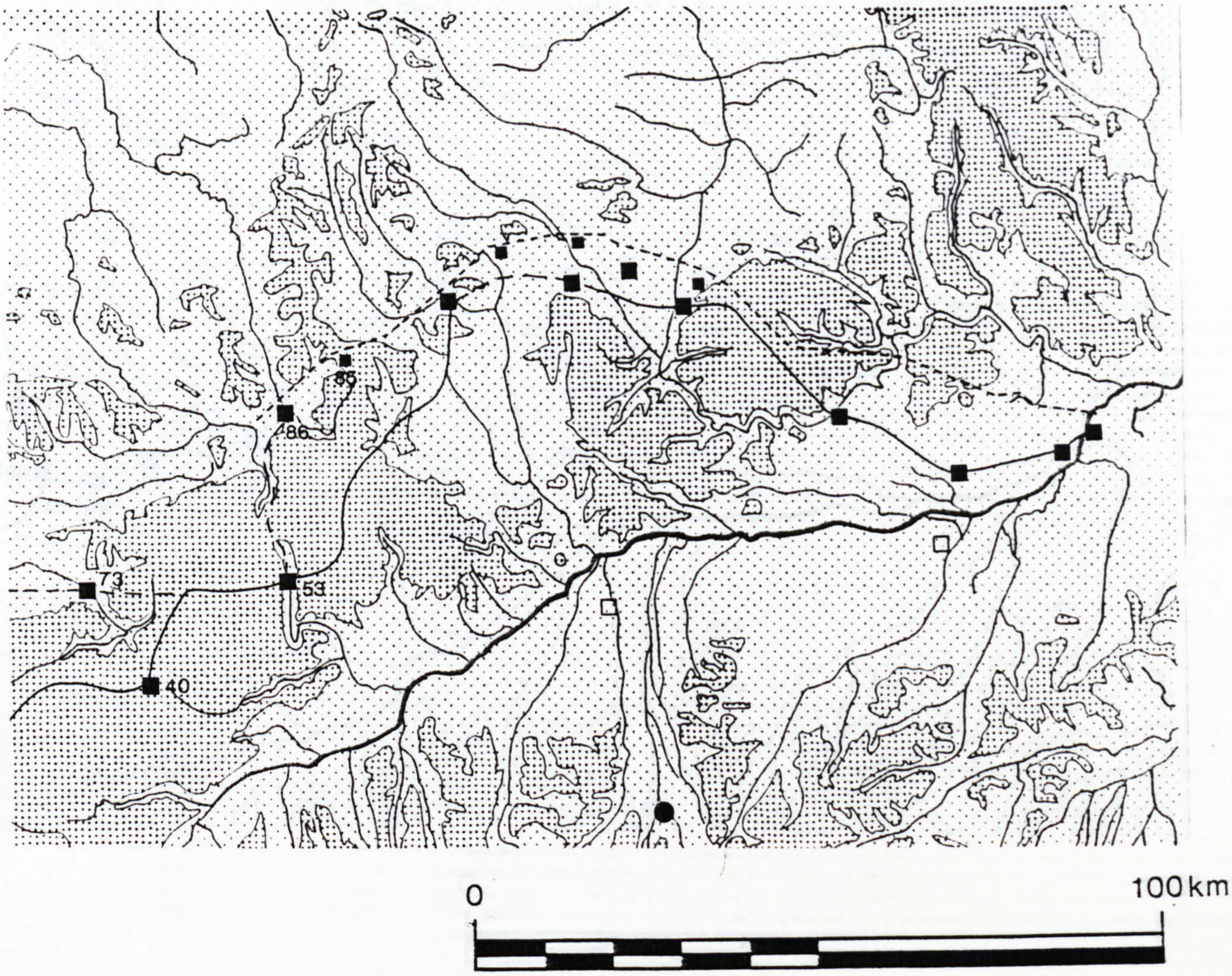
8. Raetia c90-c100



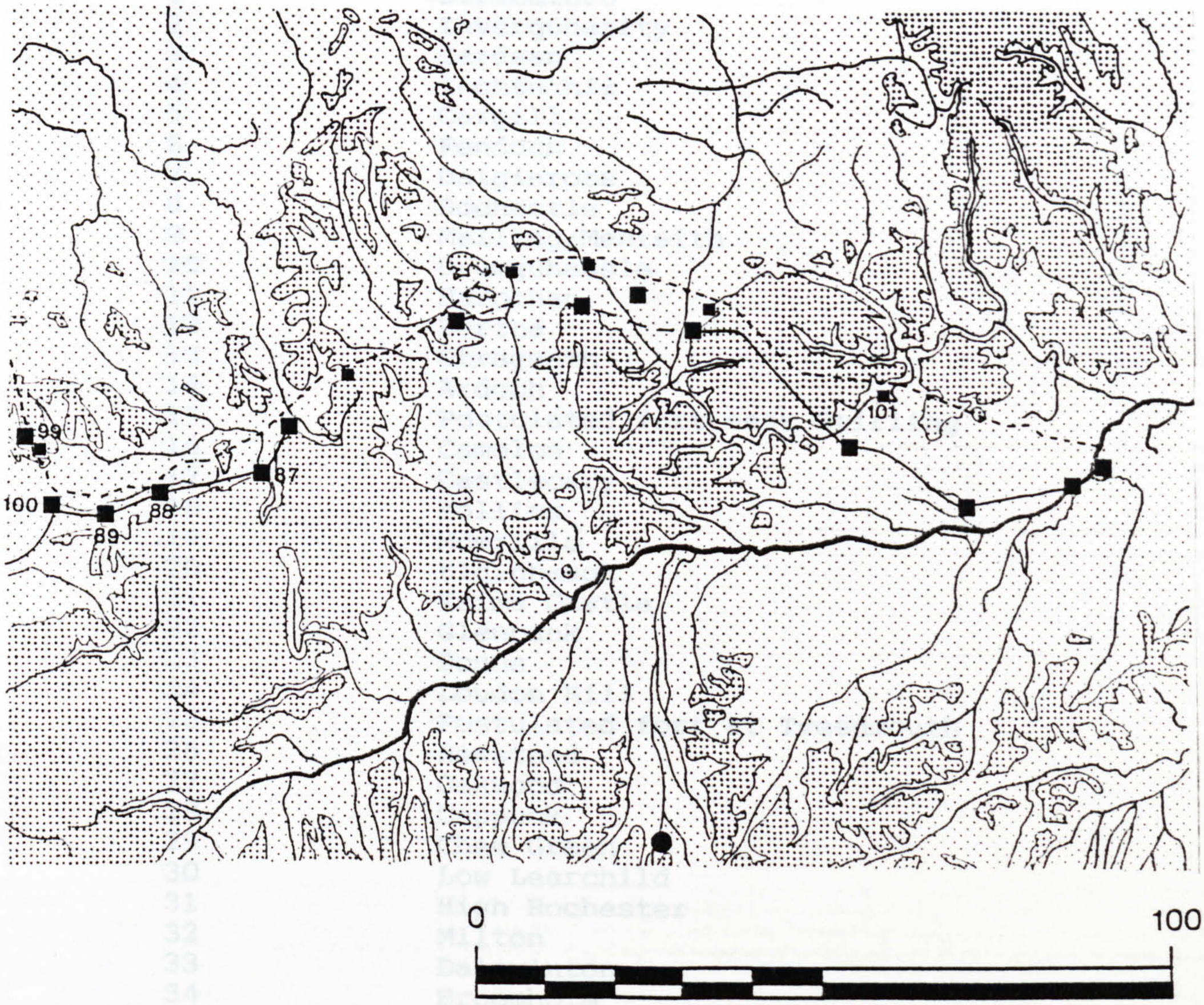
9. Raetia c100-c110



10. Raetia c110-c120



11. Raetia *c*120-*c*140

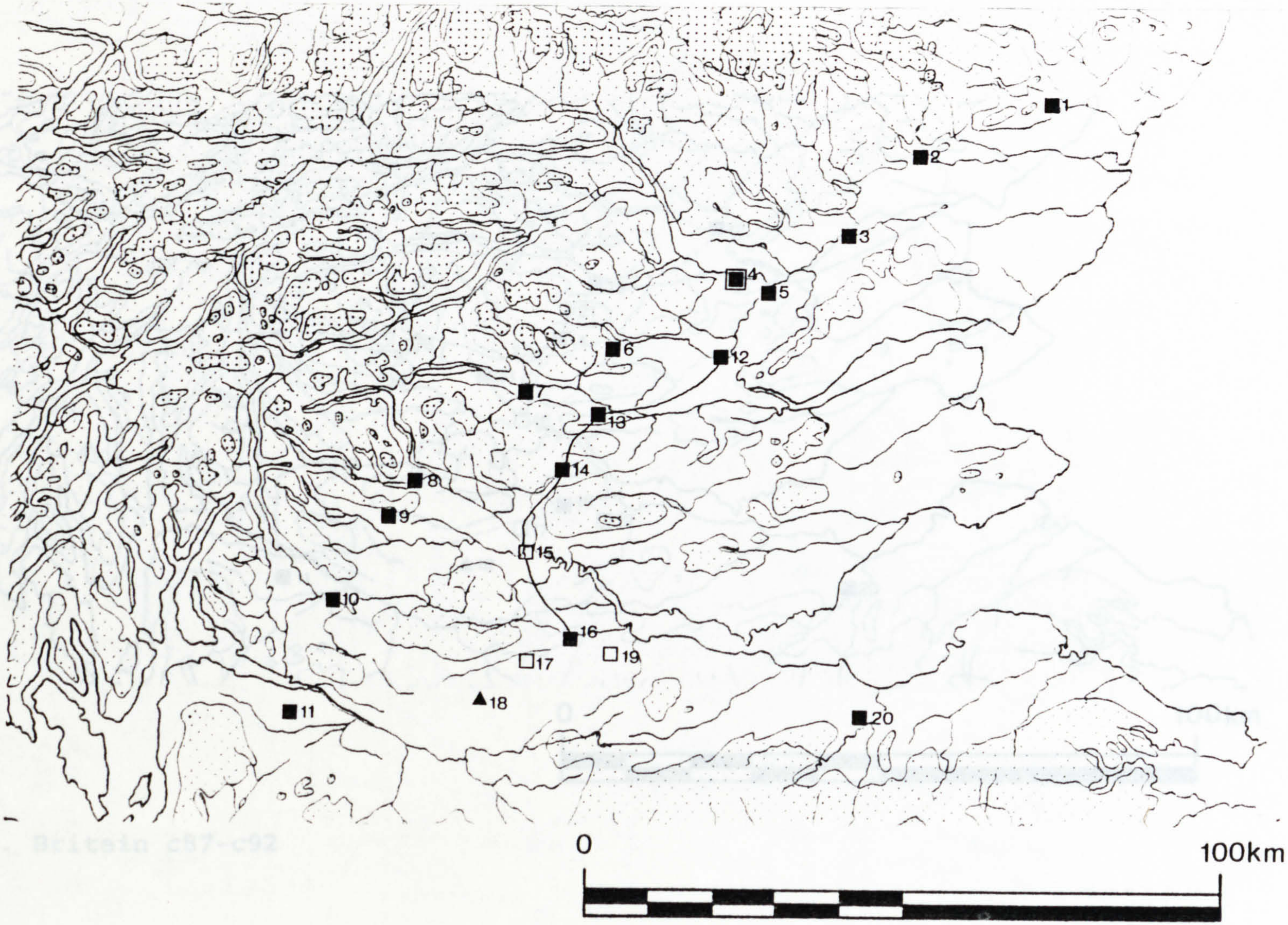


12. Raetia by *c*200

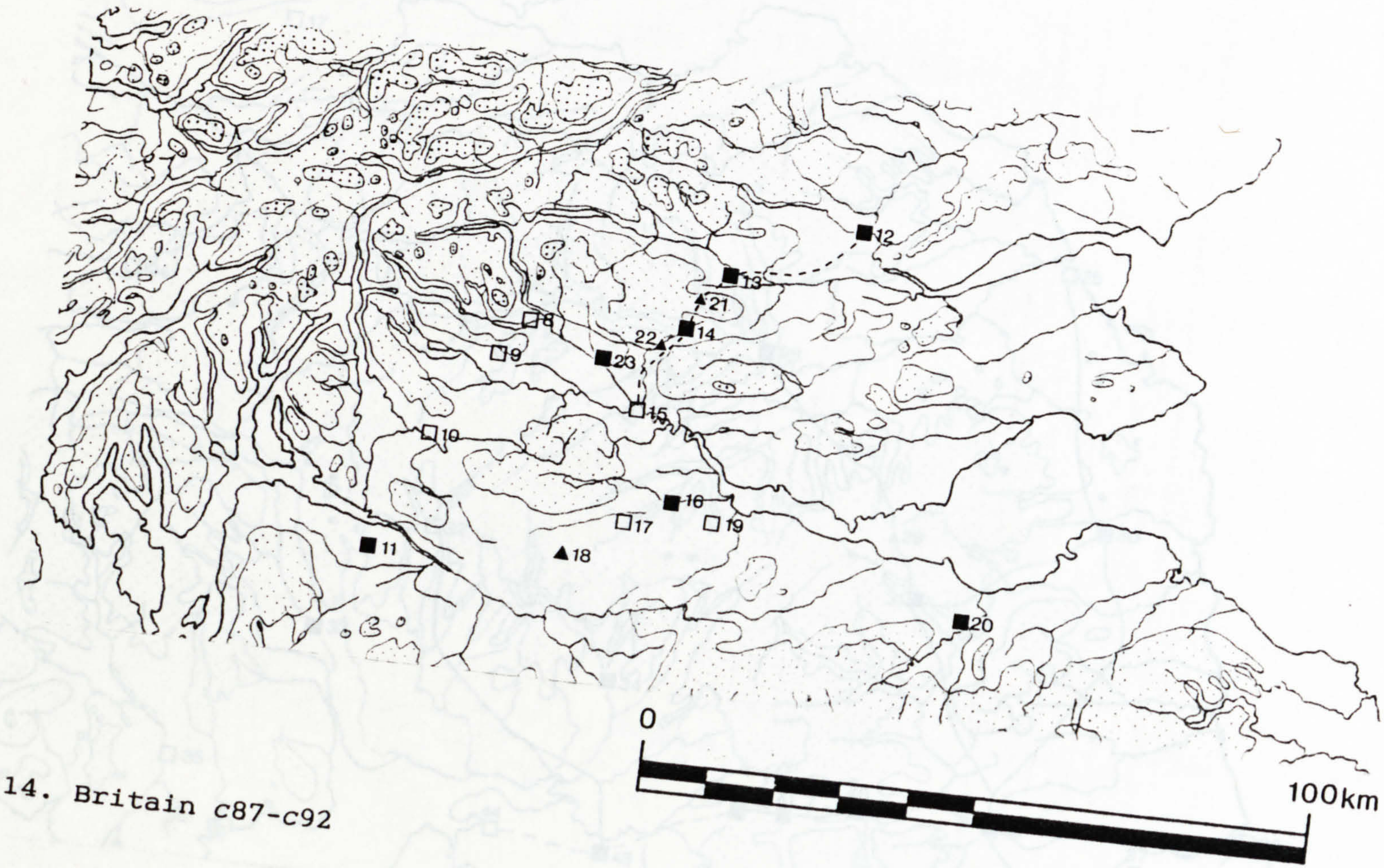
Sites on the British Maps:

1	Stracathro
2	Inverquharity
3	Cardean
4	Inchtuthil
5	Cargill
6	Fendoch
7	Dalginross
8	Bochastle
9	Malling/Menteith
10	Drumquhassle
11	Barochan
12	Bertha
13	Strageath
14	Ardoch
15	Postulated fort near Stirling
16	Camelon
17	Castlecary
18	Mollins
19	Mumrills
20	Elginhaugh
21	Kaims Castle
22	Glenbank
23	Doune
24	Loudon Hill
25	Postulated fort at Tweedmouth
26	Newstead
27	Oakwood
28	Cappuck
29	Chew Green
30	Low Learchild
31	High Rochester
32	Milton
33	Dalswinton
34	Broomholm
35	Glenlochar
36	South Shields
37	Washing Well, Whickham
38	Ebchester
39	Corbridge
40	Vindolanda
41	Carvoran
42	Nether Denton
43	Carlisle
44	Kirkbride
45	Chesters
46	Newbrough
47	Haltwhistle Burn
48	Throp
49	Castle Hill, Boothby
50	Burgh-by-Sands I and III
51	Risingham
52	Birrens
53	Netherby
54	Beckfoot

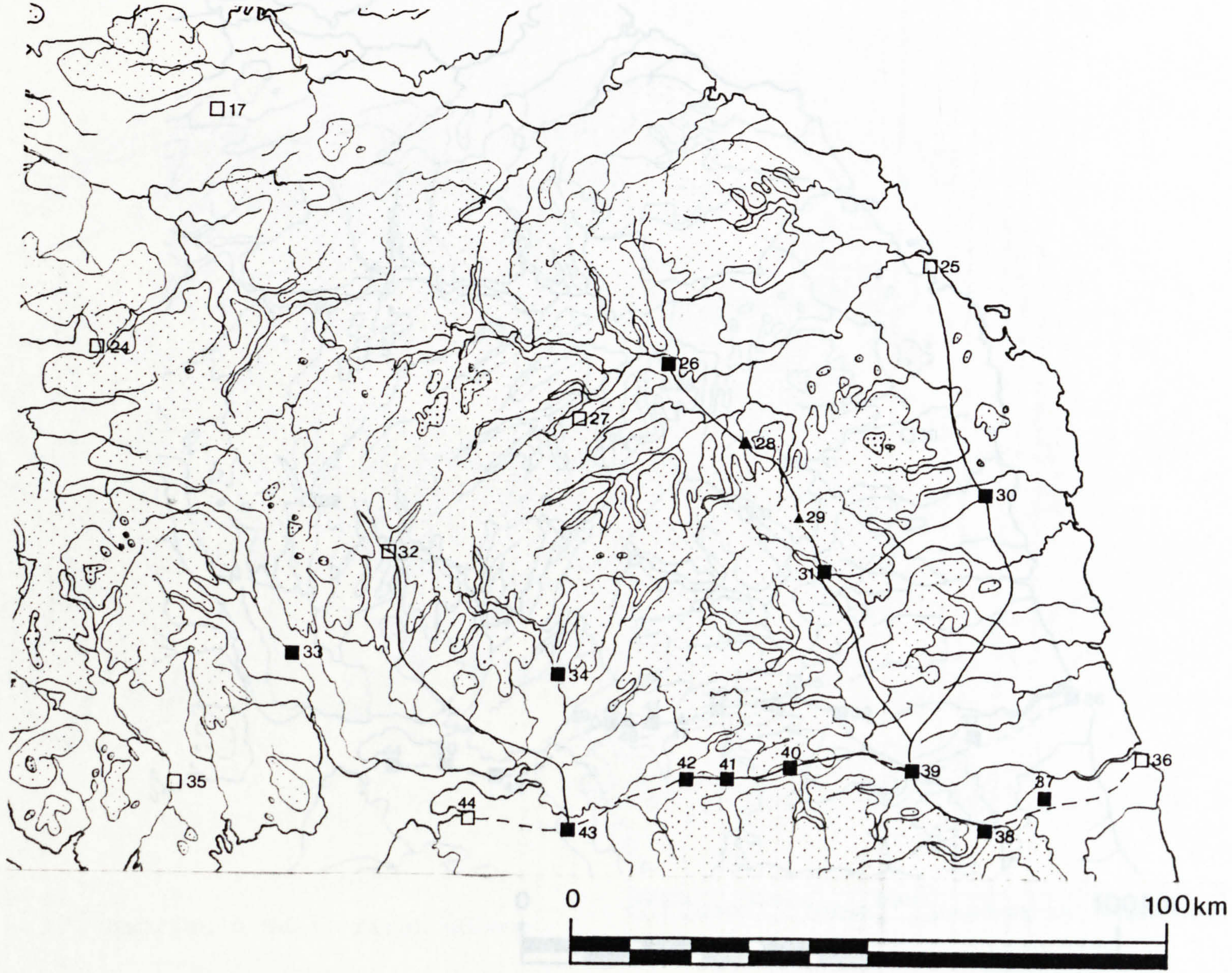
55	Maryport
56	Wallsend
57	Benwell
58	Rudchester
59	Haltonchesters
60	Carrawburgh
61	Housesteads
62	Greatchesters
63	Birdoswald
64	Bewcastle
65	Castlesteads
66	Stanwix
67	Burgh-by-Sands II
68	Bowness-on-Solway
69	Carriden
70	Bar Hill
71	Balmuildy
72	Old Kilpatrick
73	Whitemoss
74	Lurg Moor
75	Outerwards
76	Cramond
77	Inveresk
78	Carpow
79	Chester-le-Street
80	Lanchester
81	Newcastle upon Tyne
82	Drumburgh



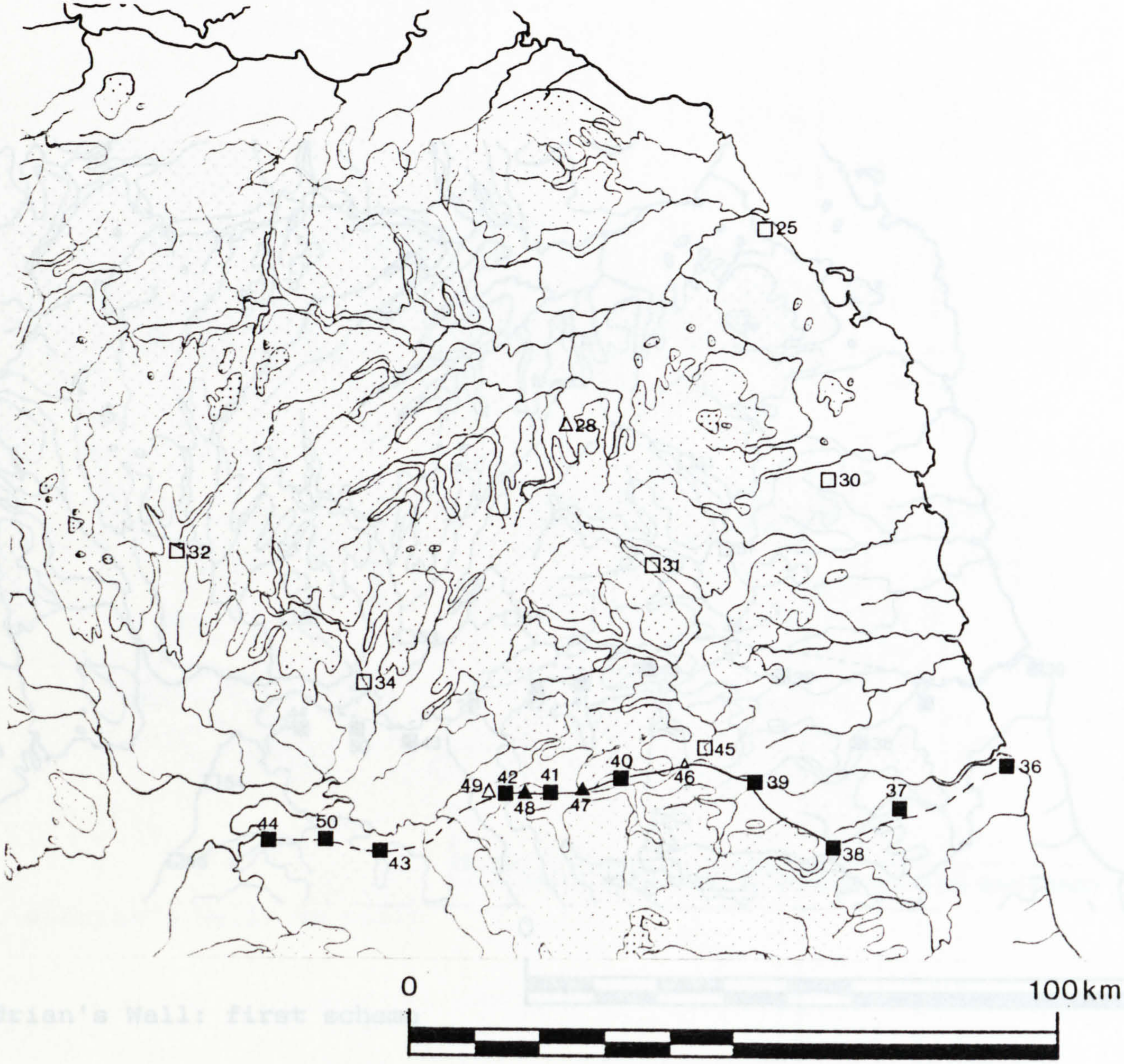
13. Britain c86



14. Britain c87-c92

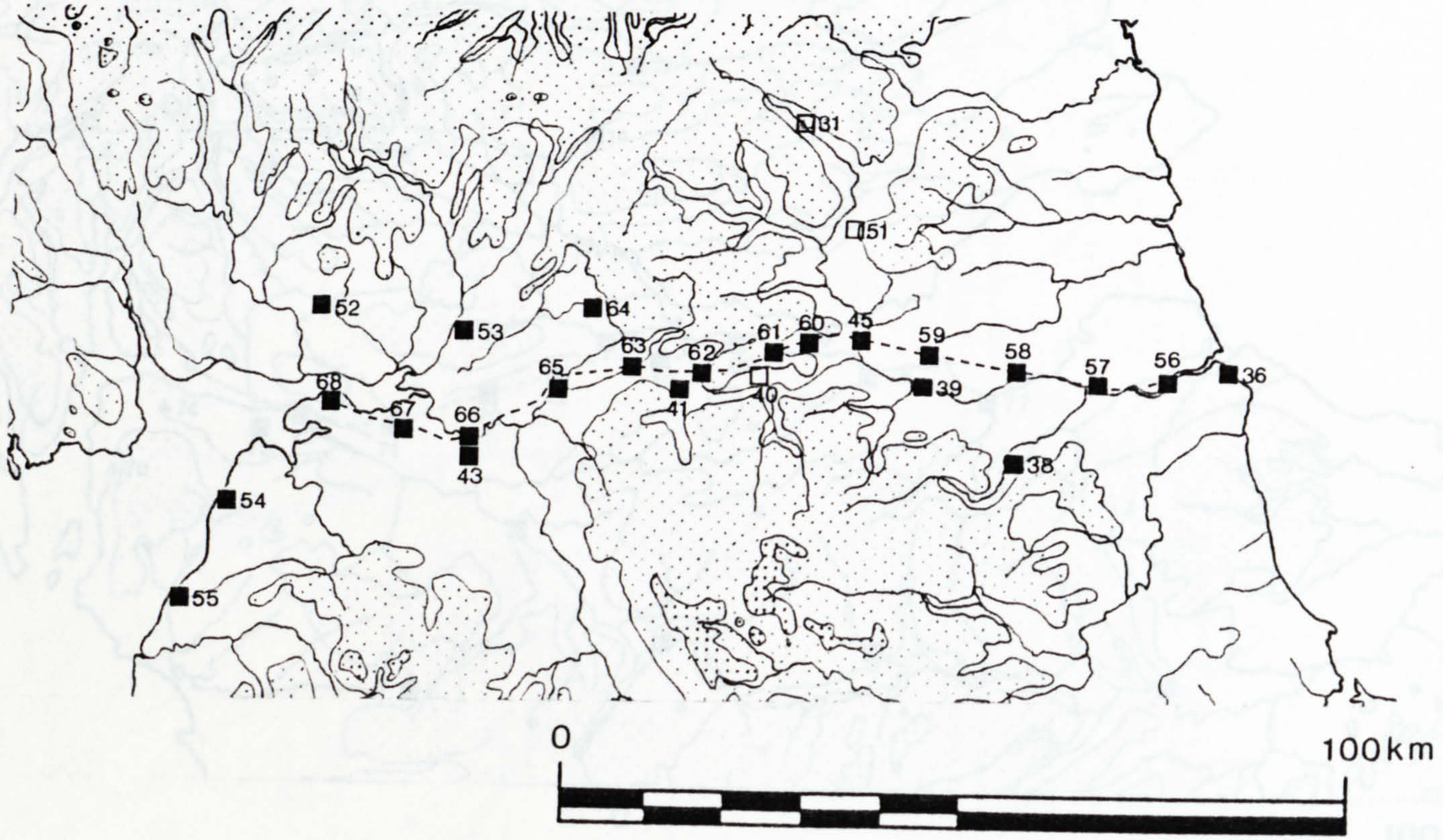


15. Britain c92-c105

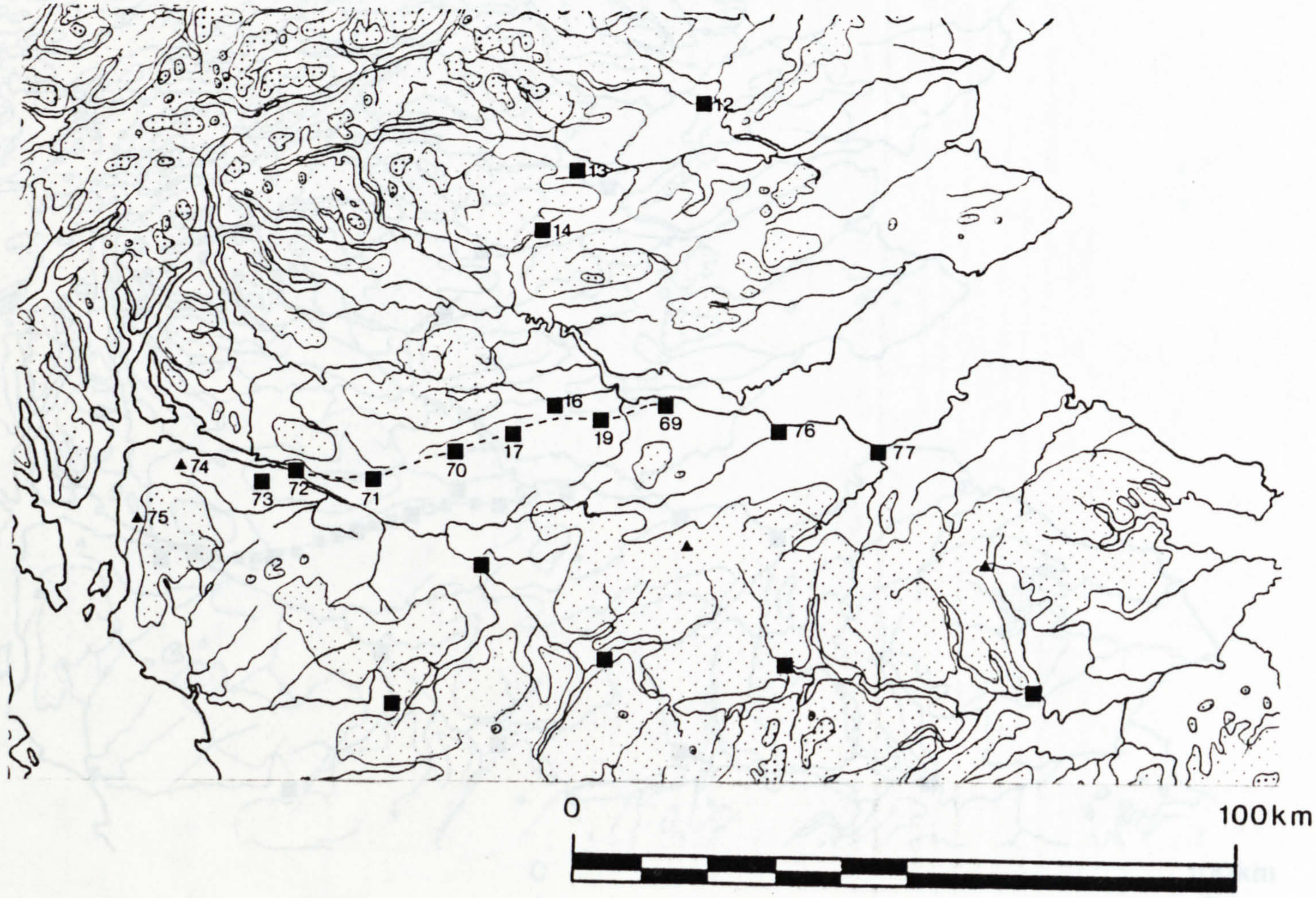


16. Britain *c*105-*c*120

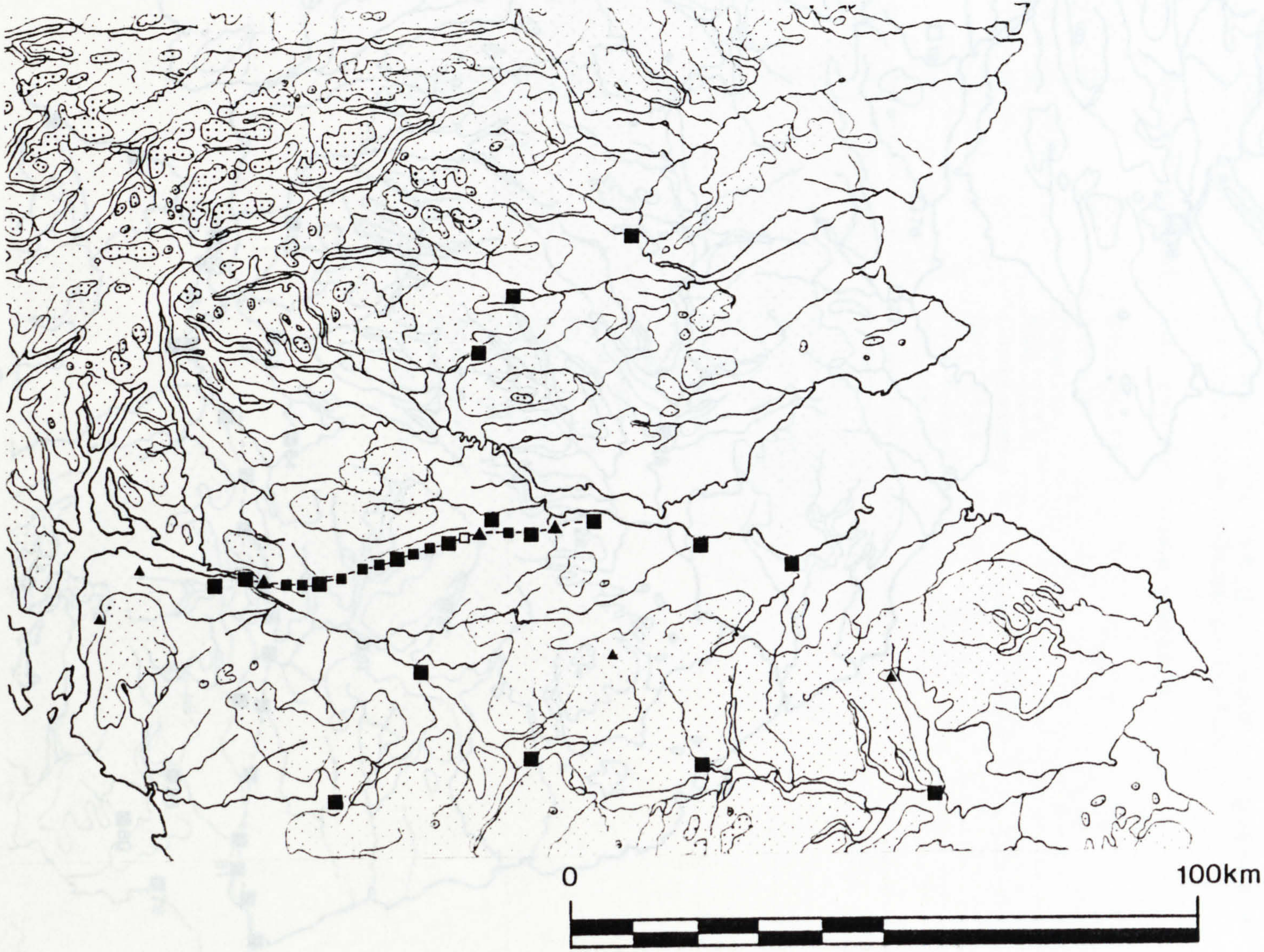
17. Hadrian's Wall: first scheme



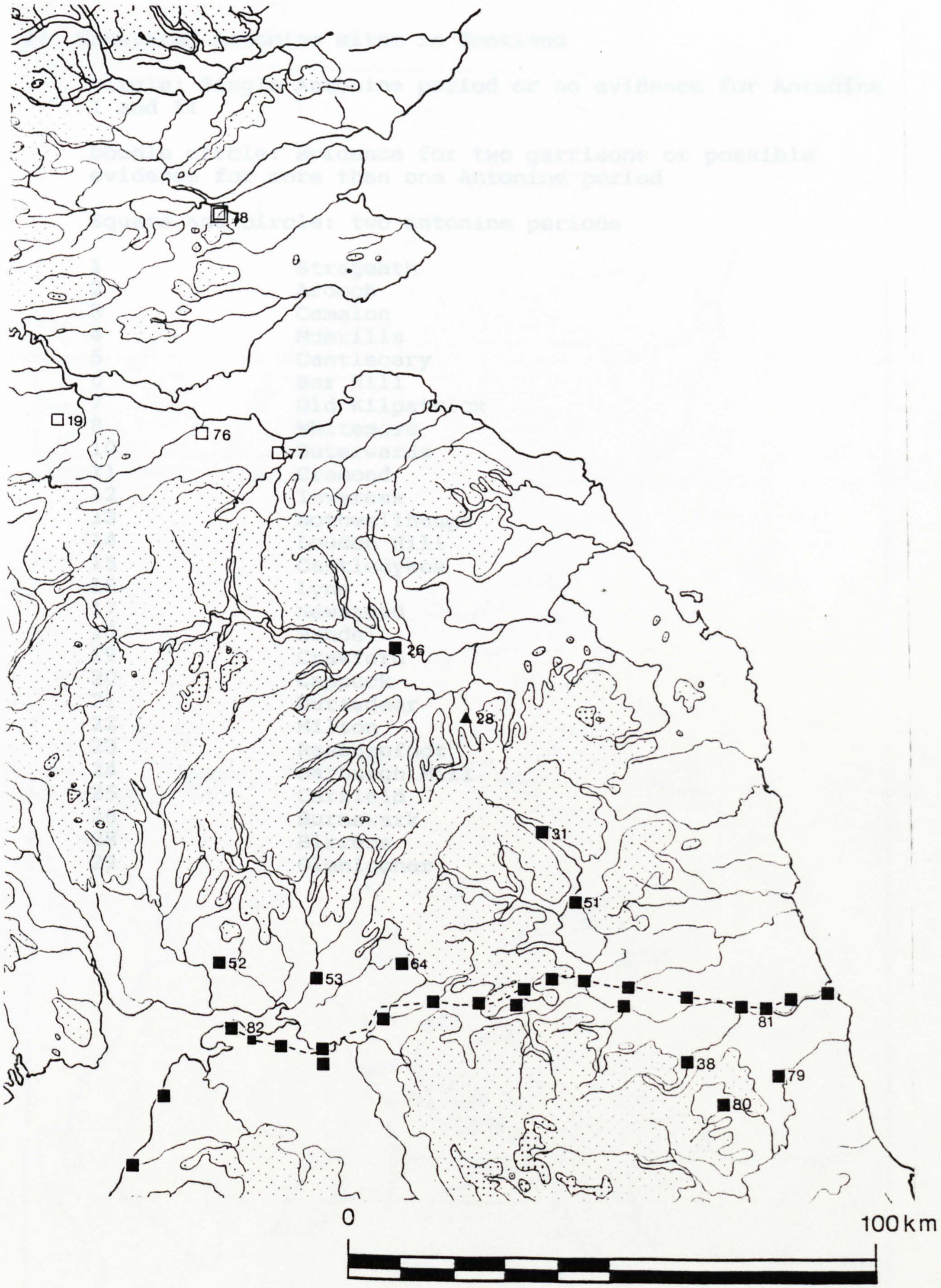
18. Hadrian's Wall: as built



19. The Antonine Wall: first scheme



20. The Antonine Wall: as built. See text page 239-40 for Antonine Wall sites, east to west



21. Sites on the northern frontier *c*160-*c*220
Open squares held for unknown duration in Severan period

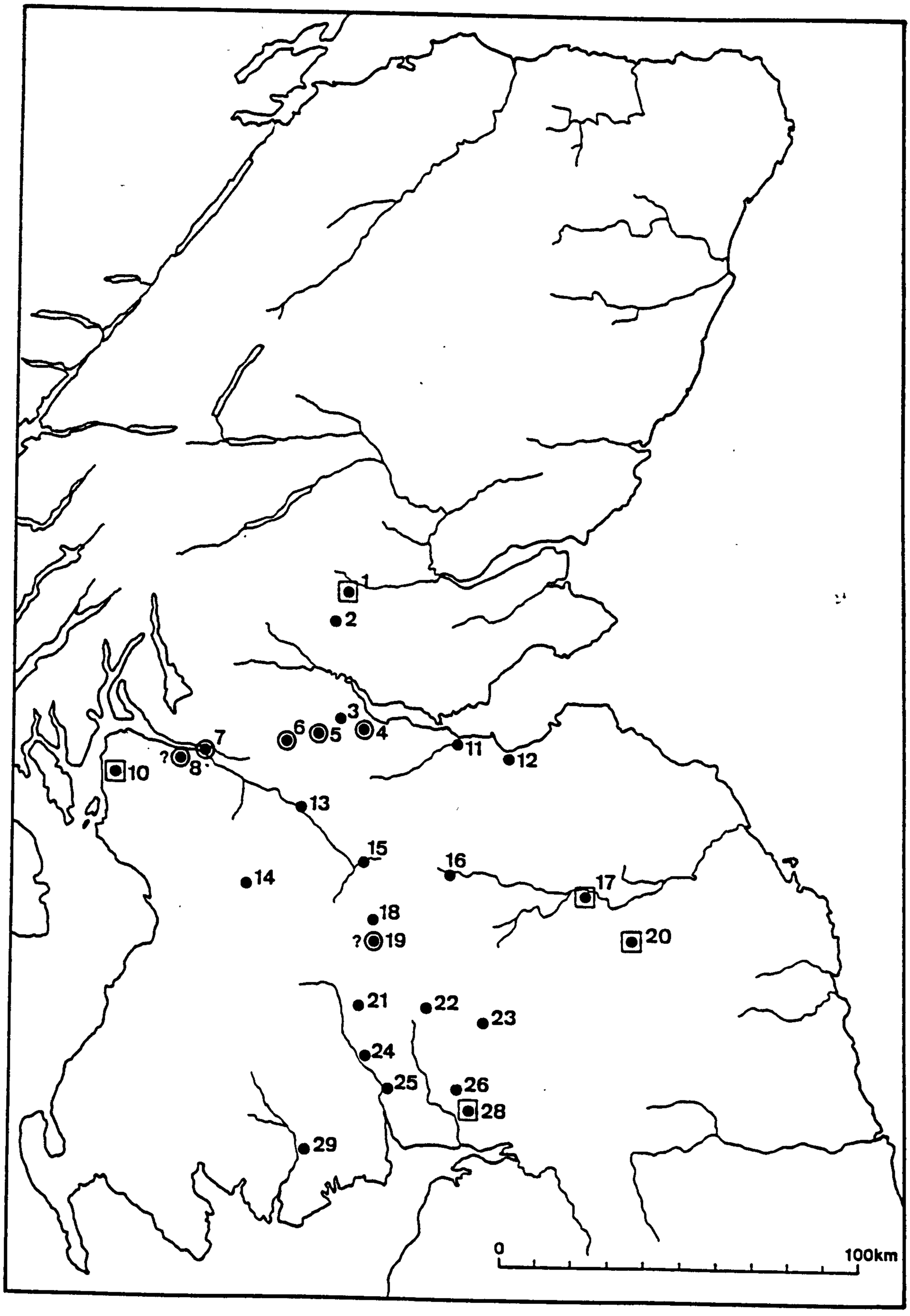
22. Excavated Antonine sites in Scotland

Circle: Single Antonine period or no evidence for Antonine I and II

Double circle: evidence for two garrisons or possible evidence for more than one Antonine period

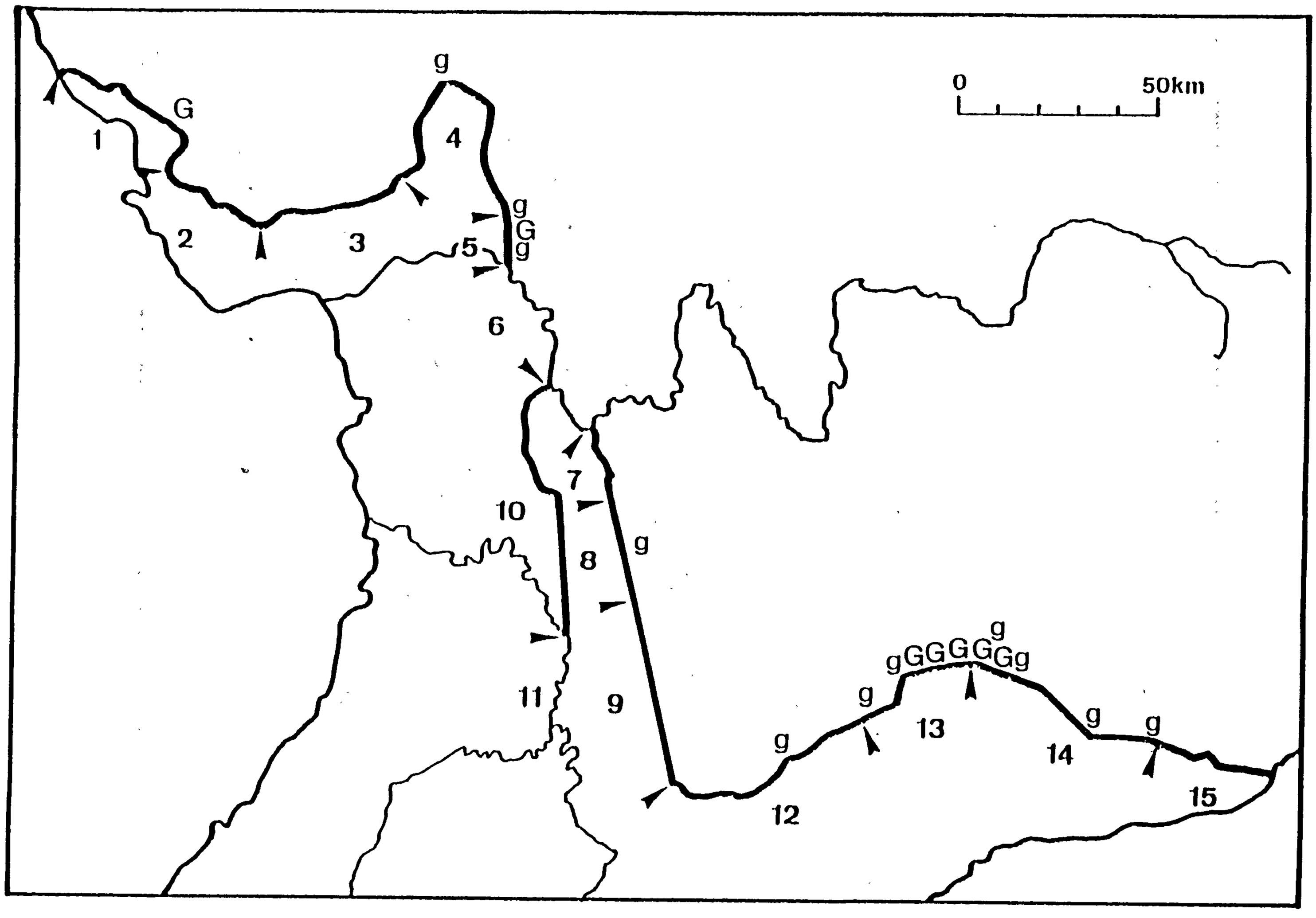
Square and circle: two Antonine periods

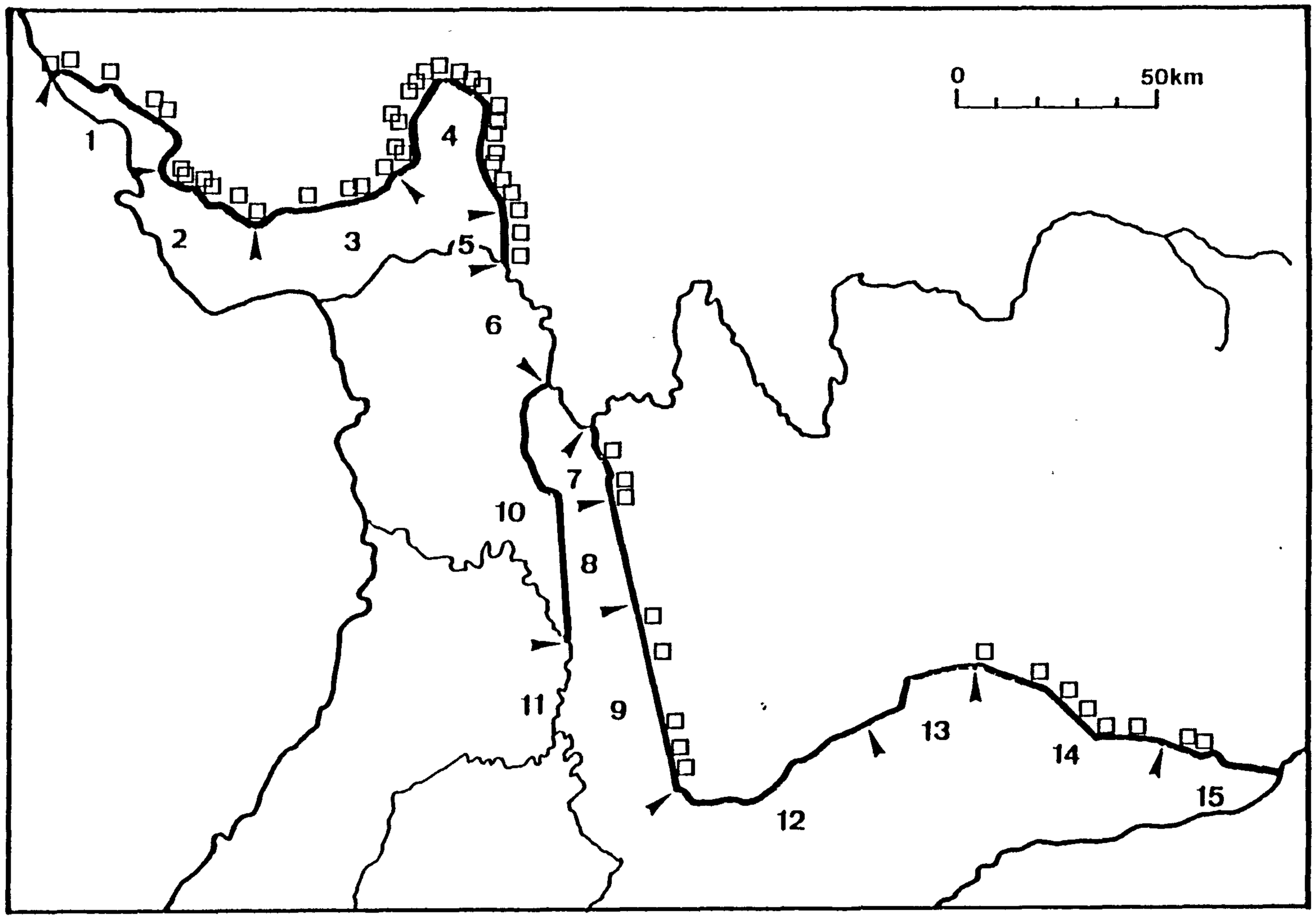
1	Strageath
2	Ardoch
3	Camelon
4	Mumrills
5	Castlecary
6	Bar Hill
7	Old Kilpatrick
8	Whitemoss
10	Outerwards
11	Cramond
12	Inveresk
13	Bothwellhaugh
14	Loudon Hill
15	Castledykes
16	Lyne
17	Newstead
18	Wandel
19	Crawford
20	Cappuck
21	Durisdeer
22	Milton
23	Raeburnfoot
24	Barburgh Mill
25	Carzield
26	Burnswark
28	Birrens
29	Glenlochar


1
2
3
4
5
6
7
8
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
28
29
0
100km

23. Known gates through the Upper German and Raetian frontier (not including presumed gates at forts and service passages). Upper case G denotes established frontier gate; lower case g denotes possible examples. For details see section 4.7

1/65
4/50?
5/7?
5/11
5/13?
8/44?
12/81?
13/5?
13/22?
13/43
13/50
13/54
14/4
14/5?
14/12
14/15?
14/56
14/78

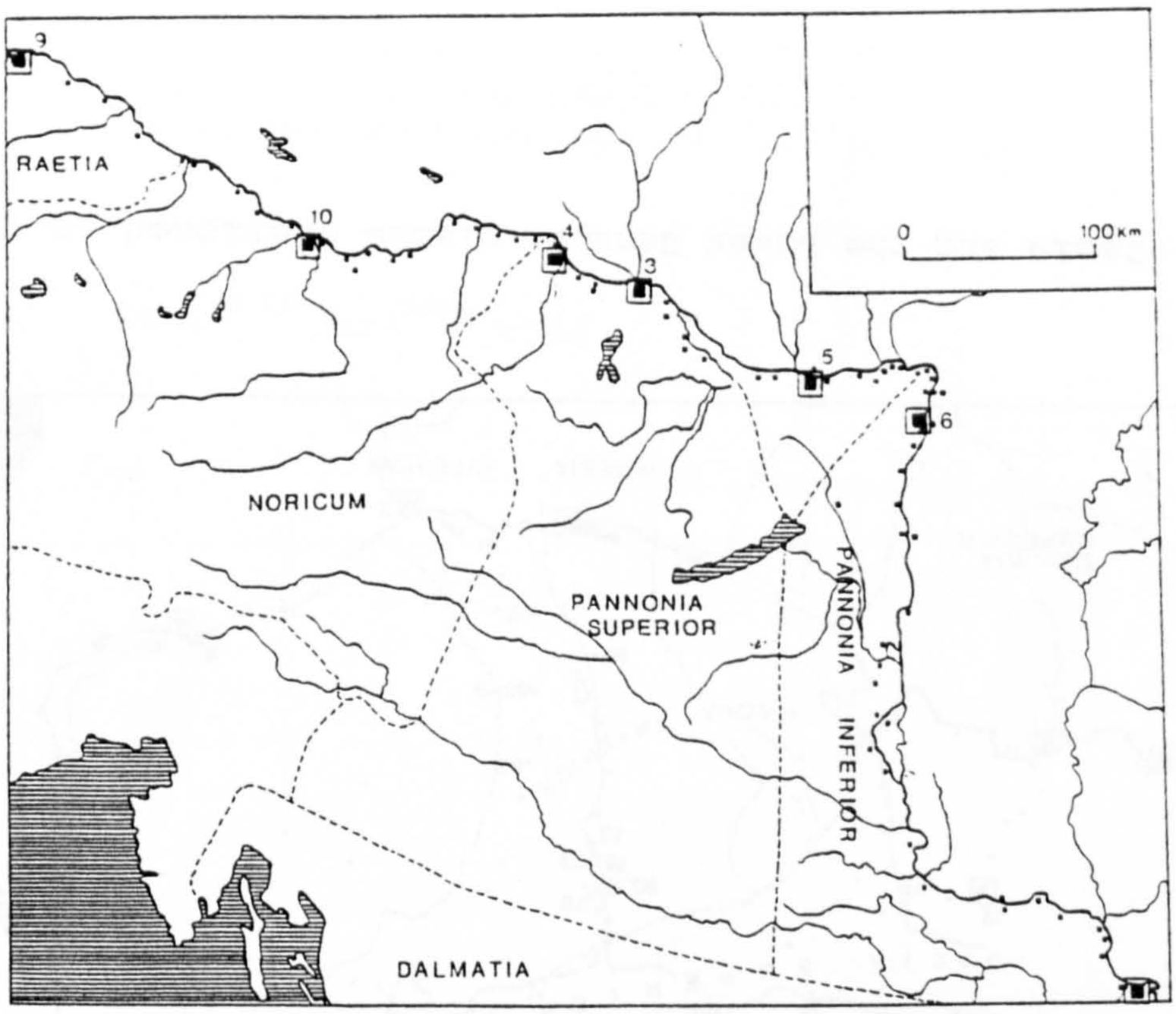

0
50km
G
g
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15



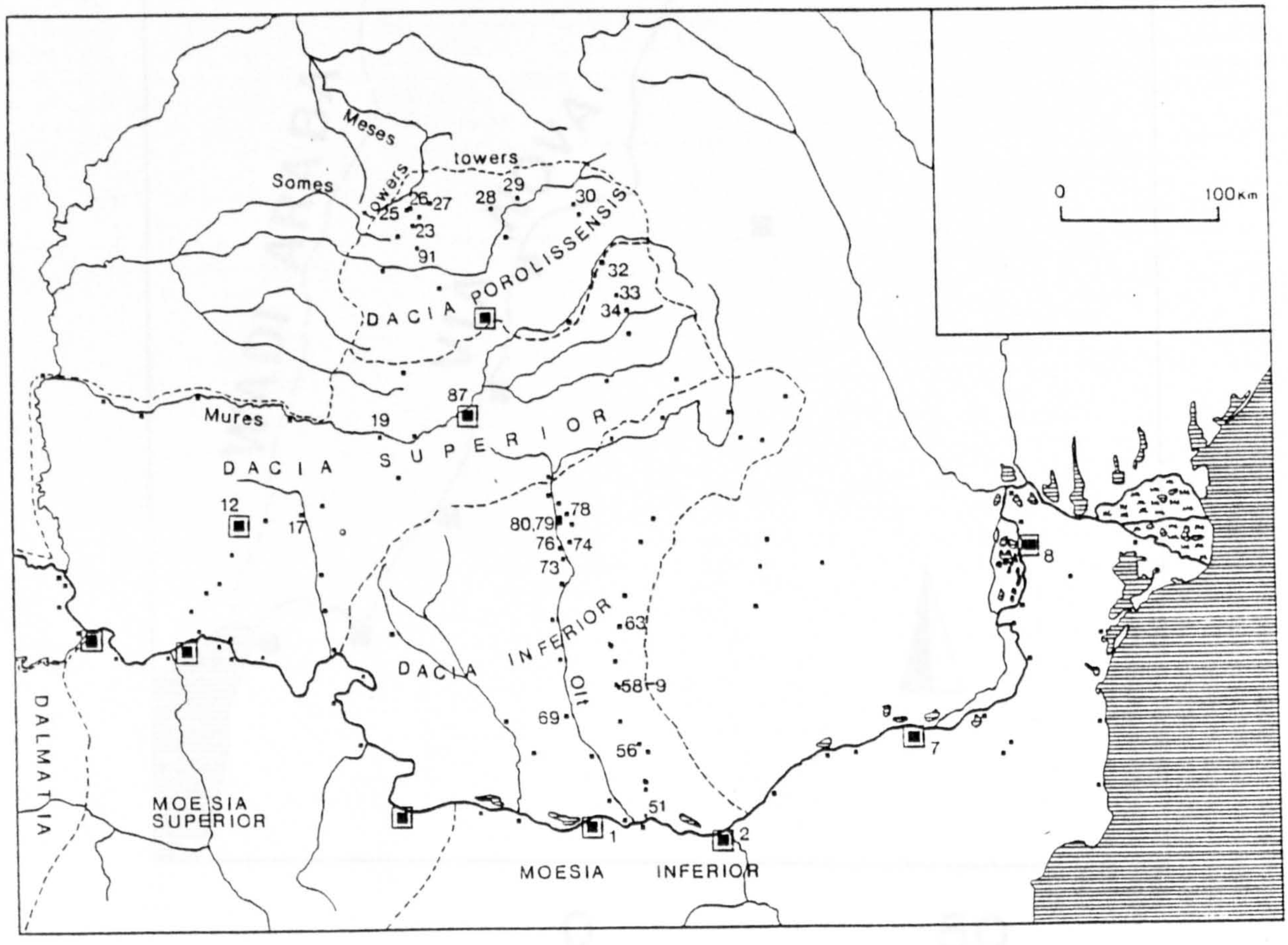
24. Distribution of fortlets on Upper German-Raetian frontier in its final state. Forts not shown.

Sites on the maps of the Danube and Dacia:

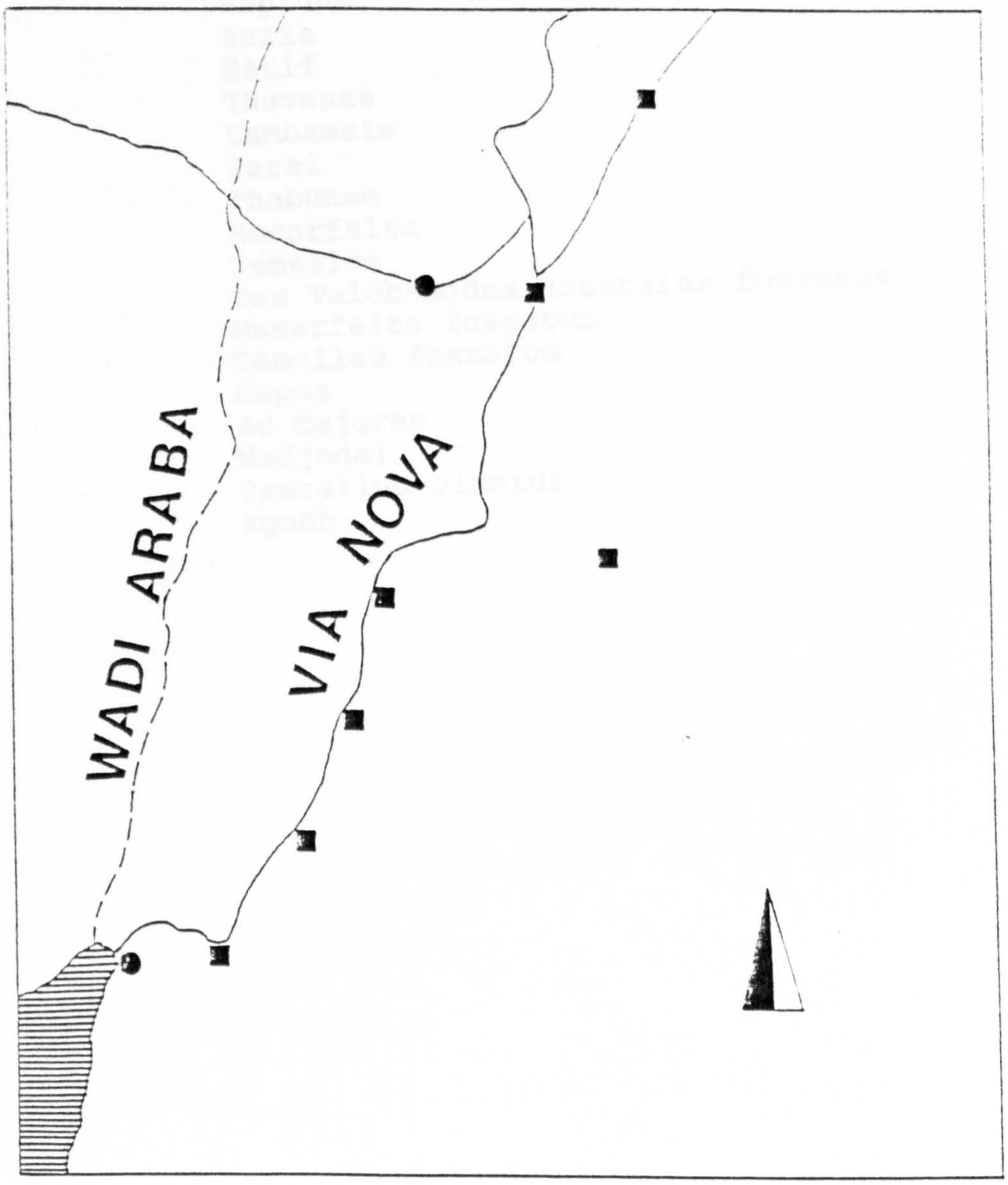
1	Oescus
2	Novae
3	Carnuntum
4	Vindobona
5	Brigetio
6	Aquincum
7	Durostorum
8	Troesmis
9	Regensburg
10	Lauriacum
12	Bersobis
17	Tibiscum
19	Micia
23	Romanas
25	Porolissum/Moigrad-Citera
26	Porolissum/Moigrad/Pomet
27	Tihau
28	Caseiu
29	Ilisna
30	Livezile
32	Brincovenesti
33	Calugareni
34	Sarateni
51	Flaminda
56	Gresia
58	Urluieni I
59	Urluieni II
63	Albota
69	Acidava
73	Castra Traiana
74	Radacinesti
76	Arutela/Bivolari
78	Titesti
79	Copaceni
80	Rucovita



25. The Middle Danube: places mentioned in the text



26. Dacia and the Lower Danube: places mentioned in the text

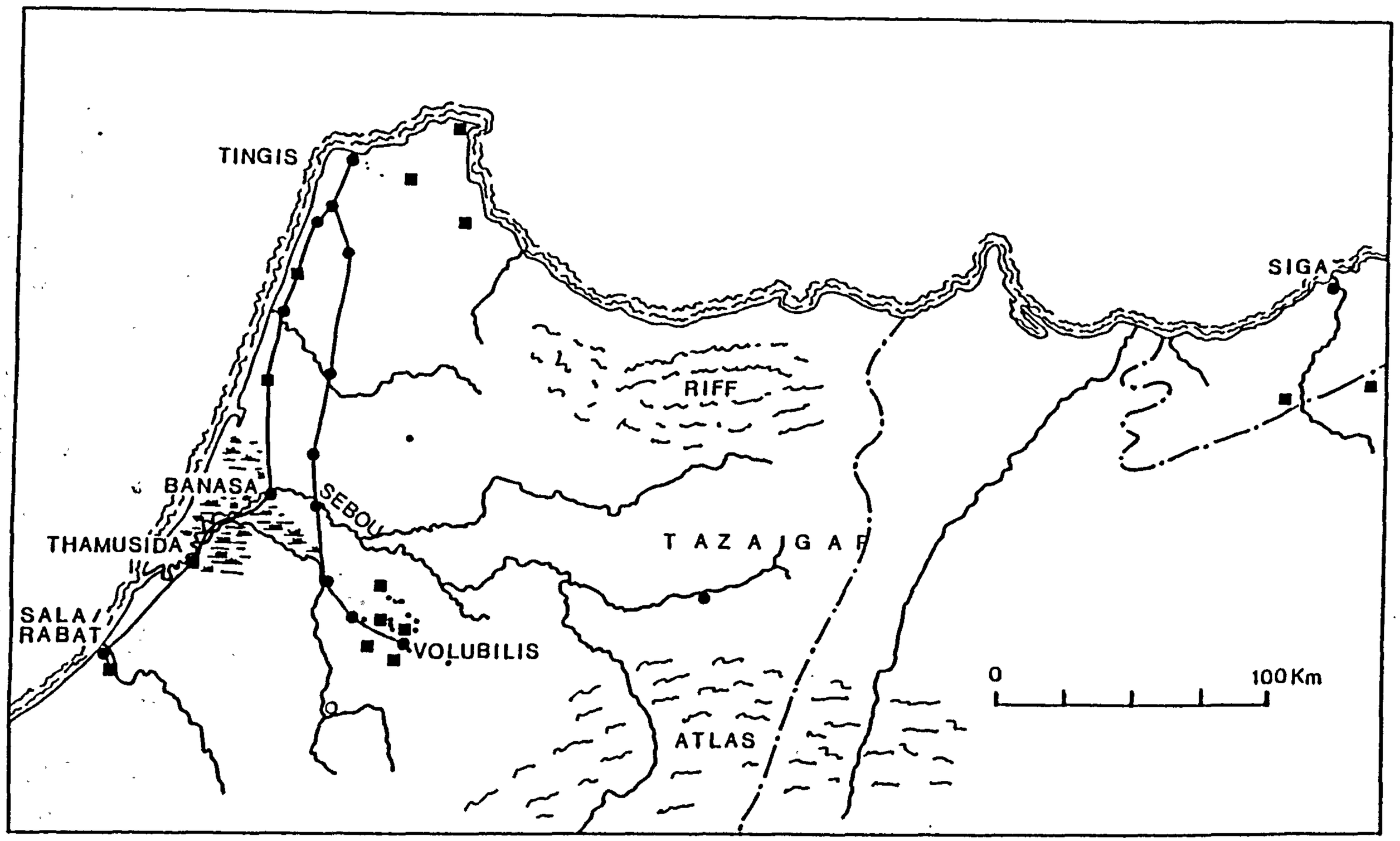


27. Part of the Arabian frontier in the second century

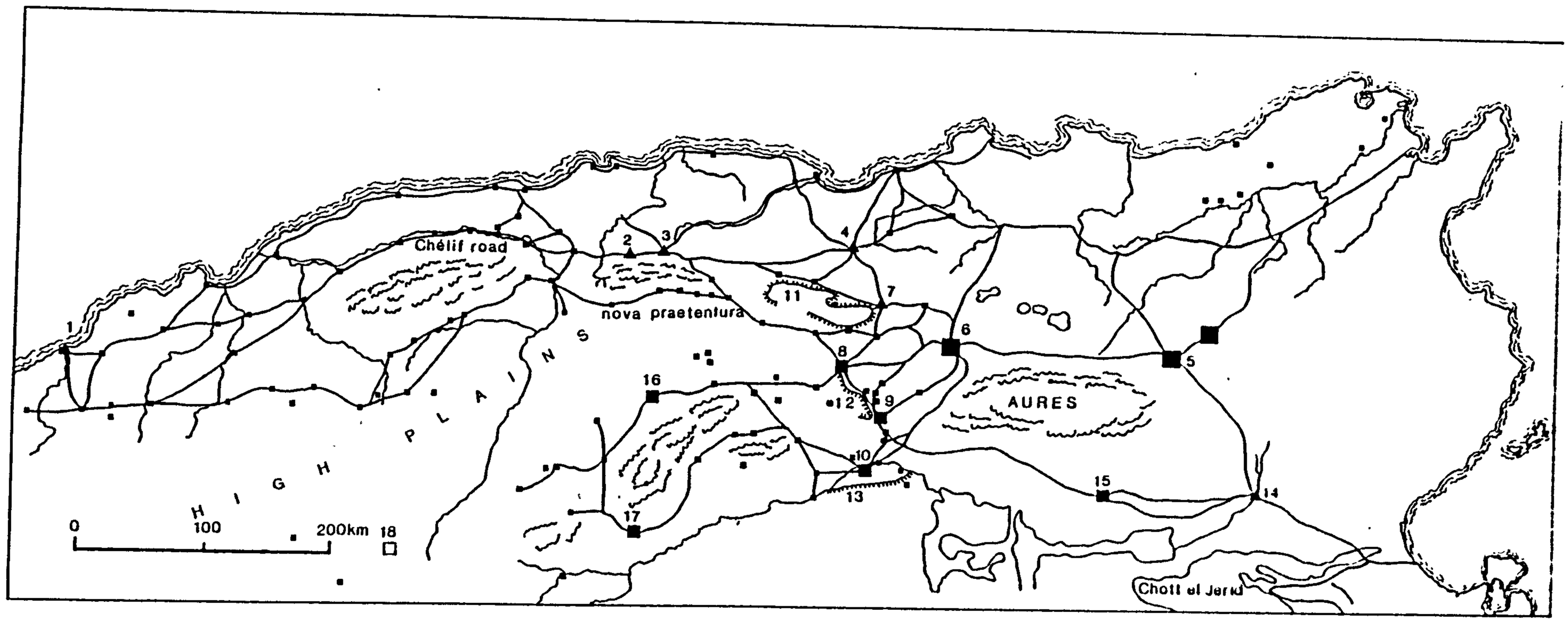
The southern sector of the Arabian frontier.
The squares represent possible military sites of the
early second century

Africa:

1	Siga
2	Rapidum
3	Auzia
4	Sétif
5	Theveste
6	Lambaesis
7	Zarai
8	Thabunae
9	Mesarfelta
10	Gemellae
11	Bou Taleb-Hodna Mountains fossatum
12	Mesarfelta fossatum
13	Gemellae fossatum
14	Capsa
15	Ad Majores
16	Medjedel
17	Castellum Dimmidi
18	Agneb



28. Mauretania Tingitana: places mentioned in the text



29. Mauretania Caesariensis and Numidia: places mentioned in the text